County Borough of Wolverhampton.

ANNUAL REPORT

UPON THE

HEALTH OF WOLVERHAMPTON

FOR THE YEAR 1893.

WOLVERHAMPTON:

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County Borough of Wolverhampton

REPORT

UPON THE

HEALTH OF WOLVERHAMPTON,

FOR THE YEAR 1893,

BY

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MEDICAL OFFICER OF HEALTH.

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MEDICAL OFFICER'S REPORT.

1893.

PREVALENCE AND PREVENTION OF INFECTIOUS DISEASE.

Table 2 is a summary of returns made weekly to Dr. Reid, the County Medical Officer, at his suggestion. The figures are the numbers of cases reported by Medical Men under the Infectious Diseases Notification Act; the crosses represent the degree to which the Diseases heading those columns prevailed, these are only rough approximations.

Table 1 gives the total number of cases about which enquiries were made and which were recorded. In this table the Measles figures are gathered from cases reported by our own Inspectors, from the various schools, and by the School Board Officers, and from a few other sources; they are therefore far from complete, and scarcely at all include cases occurring amongst the better-off classes.

Small-Pox.—After remaining singularly free from known cases of Small-Pox for about six years, (the last reported cases were two in 1886; we had forty-nine in 1884) we had a case reported on April 21st this year. The patient was a traveller, who had been nearly a week ailing, and had the rash out for a few days, but continued about quite ignorant of his ailment. He was at once removed to the wooden annex at the Borough Hospital, and all whom we could get at who were in contact with him were re-vaccinated. This man had been in several infected districts in the course of his business. On April 20th he had been with a fellow-traveller, who, through being away, missed re-vaccination. On May 3rd this man was taken ill and was reported

on the 6th and removed to the Borough Hospital. All in the house where he was staying were re-vaccinated. We had no further extension. On May 16th another case was reported in quite a different part of the town; this was a very trifling case and in a house with abundant facility for isolation; it was dealt with at home, the other inmates being re-vaccinated; there was no other case. This patient was engaged out of town, and probably contracted infection away.

The next case did not occur until September 27th, when a baby of 8 months, un-vaccinated, was taken ill with what a neighbour informed the mother was measles and needed no doctor. On October 1st the mother, alarmed by the swelling of the child and its bad condition, sent for a doctor, but the child was dead just before his arrival; it was a case of virulent confluent Small-Pox, the rash thick over the whole surface, in the vesicular stage. It was an only child, and by arrangement with the Coroner was buried at once, the other inmates of the house, 3 adults, being re-vaccinated. I could not trace the infection in this case. There was no known extension.

On October 2nd a case was reported a mile-and-a-half distant from above, and quite unconnected; this was a woman (un-vaccinated) who had come with her husband a week before from Walsall, where Small-Pox was then epidemic, there having been a case at the house where they had been staying. They came to stay with her husband's relatives in Wolverhampton. She had only been four days ailing, the rash only a day out; she was at once removed to the Borough Hospital. There was a child of three years, vaccinated, and 5 adults in the house; strange to say, three of these adults were marked with Small-Pox; the other two had good vaccination marks, but refused re-vaccination; one was the husband of the patient. We had no second case here, but after the patient (a severe confluent case, ten weeks in hospital) had been 7 weeks ill, the nurse attending her, who had refrained from going out for 5 weeks, and had then taken every possible precaution when she did so, carried the infection to her sister, who resided over a mile away. She was at once removed to the Hospital; the only other inmates of the house were her parents. We had no other case.

The following is a summary of the cases as regards vaccination:

Case.	Age.	Vaccination.	Nature of Illness.
1	28 years.	Infancy, one good foveated mark, larger than a shilling. ...	Pocks numerous on face, scattered elsewhere, after first few days felt perfectly well; pocks dried with almost no suppuration; a few on soles were a long time being cast off and delayed discharge. 41 days in Hospital.
2	23 ,,	Infancy, two good foveated marks, each about size of sixpence.	Precisely similar case to No. 1; onset rather more severe. 48 days in Hospital.
3	22 ,,	Infancy, four good marks, size not recorded.	A very mild case of varioloid; a few scattered typical pocks; not at all ill; treated at home, and clear in from three to four weeks.
4	8 months.	Un-vaccinated. ...	Died on fifth day of illness;
5	31 years.	Un-vaccinated ...	Severe confluent case, almost fatal, recovered rather badly marked; ten weeks in Hospital.
6	15 ,,	Infancy, three good foveated marks, each nearly as large as a shilling. ...	About a dozen scattered typical pocks, no illness after onset; pocks dried without suppuration; clear in 3 weeks from admission, (3 days ill before admission) but discharge delayed through attack of tonsilitis. 29 days in Hospital.

Of course, above are far too few cases to more than help to confirm the similar results found in every experience of Small-Pox.

Measles.—The prevalence of Measles has been very moderate; the Quarterly numbers of cases and deaths since 1884 have been as follows:—

	1884.	1885.	1886.	1887.
Cases	272, 710, 143, 2;	4, 2, ... 17;	21, 9, 189, 959;	124, 17, 31, 22;
Deaths	11, 66, 20, 1;	1, ..., ..., ...;	..., ..., 8, 103;	19, 4, 7, 1;
	1888.	1889.	1890.	
Cases	119, 149, 166, 435;	150, 228, 78, 141;	68, 45, 139, 230;	
Deaths	9, 6, 5, 19;	10, 11, 11, 8;	3, 10, 5, 14;	
	1891.	1892.	1893.	
Cases	73, 4, 11, 275;	501, 415, 82, 33;	21, 18, 106, 248;	
Deaths	5, ..., ..., 20;	21, 16, 3, 1;	6, ..., 5, 10.	

Of course the numbers of cases reported are but a very rough approximation to the numbers actually occurring, for there is no systematic reporting of Measles, and many cases remain unheard of. It would appear that the diminution which occurred towards the close of last year, was carried on over the Second Quarter of this. The six deaths in the First Quarter, with only 21 cases, is singular. Two of the cases were in the Workhouse, and were of cases not included the 21. In the month of August there were two slight outbreaks, the first about Steelhouse Lane, the other about Brickkiln Street. The latter involved so many of the children from the Board Schools that it was thought best to close the latter; this was done for 4 weeks on August 28th. Both these outbreaks subsided without any apparent extension beyond these regions. They caused 52 and 54 cases, and three and two deaths in each Sub-District. Towards the end of October there was an outbreak to the West of the Dudley Road; this soon passed across into the East, and continued in this whole region nearly all through November. Early in December there was a further extension in the West, and this prevalence continued to the close of the year. We heard of 75 cases, 3 of them fatal, in the East; 173 cases, 1 fatal, in the West. Besides these there were 6 deaths from Measles in the Workhouse, where there evidently must have been a very fatal outbreak. These 6 deaths were of Wolverhampton children only; there were further deaths of cases from the Union outside the Borough.

Scarlet Fever.—The year 1892 was remarkable for very low Scarlet Fever returns—both of cases and deaths. During the first five months of the present year the cases fell very low, but kept occurring rather regularly—in about such numbers as we might ordinarily expect. There was a considerable increase from the beginning of June to the middle of July, but this then fell away again until September. During the last four months there was constant and rather exceptional prevalence, probably the greatest prevalence that we have had since we first recorded cases in 1884. During the middle fortnight of October, and from the middle of November to the middle of December, cases occurred in almost

alarming numbers. Even during the periods of greatest pressure there was scarcely any suggestion of a real epidemic; the cases occurred in small groups, and, as a rule, each centre of infection was stamped out fairly readily.

We began recording our cases in 1884, but as we have only had notification since 1890, (inclusive) the returns before that year are probably less complete than those since. The Death records in my possession go back to 1870; the following are the deaths since that year, and the known cases since 1884.

	1870.	1871.	1872.	1873.	1874.	1875.	1876.
Deaths	54,	26,	69,	121,	34,	26,	58.
	1877.	1878.	1879.	1880.	1881.	1882.	1883.
Deaths	226,	40,	17,	39,	64,	27,	24.
	1884.	1885.	1886.	1887.	1888.		
Deaths	37,	46,	5,	16,	17.		
Cases	212,	244,	47,	168,	194.		
	1889.	1890.	1891.	1892,	1893.		
Deaths	6,	13,	14,	3,	25.		
Cases	124,	500,	419,	242,	623.		

The fatality varies in different periods, so that the deaths bear no ratio to the cases; as a rule with increased prevalence there is increased fatality, so that the higher death returns do not mean quite a proportionate increase in cases.

We began isolating at the Borough Hospital in August, 1885, having been partially isolating for several years previous to this at the General Hospital, but only such cases as were in specially bad surroundings, others being necessarily neglected through lack of accommodation and because of the cost. There was a general remission of Scarlet Fever throughout the country for some three or four years after 1885, but, even taking this into account, the difference in the deaths before and after that period is very striking. There is a periodic rise and fall in each period of about four years, and the maxima since 1885 are, as a rule, less than the minima before it. As the population has increased from less than 68,000 in '70, to over 84,000 in '93, the proportionate reduction in deaths is even more than the actual reduction in numbers. The practical difference in the condition of the town may be best understood by considering the state of things as regards the chance of infection in our streets.

During any of the periods of maximum prevalence before 1886, a susceptible person would incur grave risk of infection in passing through many of our back streets and courts. Since that date I am confident that at no time would such risk have amounted to a practical item.

The following Table gives the particulars as to the Quarterly treatment of the cases in the two Sub-Districts, the foot notes must be attended to in estimating the number of cases left to home care, as the "removals" are only those to the Borough Hospital, and a few cases are still isolated at the General Hospital, some through the preference of their friends, some through being brought up amongst the out-patients in ignorance, and detained in the Hospital.

Quarters.			1st	2nd	3rd	4th	Year.
East	Total	Cases	20	42	77*a*	162*b*	301
		Deaths ...	...	1	4	12	17
	Removals	Cases ...	17	42	71*c*	146	276
		Deaths ...	...	1	2	7	10
West	Total	Cases	42	63*b*	84*d*	133*b*	322
		Deaths ...	1	...	2	5	8
	Removals	Cases ...	39	54	74	101	268
		Deaths ...	1	...	2	4	7

a.—Two of these cases were taken by friends to the General Hospital.

b.—Three of these cases were taken by friends to the General Hospital.

c.—One of these cases was Nurse in the Borough Hospital.

d.—One of these cases was taken to the General Hospital by friends.

From the above it appears that in the East Sub-District in the First Quarter only 3 cases were kept at home; in the Second Quarter

all the cases were removed; in the Third Quarter only four were kept at home; of these, one died the day after it was reported, another was a doubtful case. With such apparently complete Hospital isolation as this, it appears disappointing that in this Sub-District we should have 162 cases in the Fourth Quarter. If we could hear of each fresh case promptly, and at once remove it, Scarlet Fever would be almost extinguished, but of course we do nothing of the kind, and the above Hospital isolation is not at all so complete as it appears. The following are a few out of many cases which illustrate this point; we had two cases reported on January 16th in a good house, where home isolation was possible, and they were not removed. We had no other case reported until March 9th, when:—

H.A., ill on March 6th. Six other children, all out but H.F. and H.B. when Inspector called, and *two then at School.* Removed to Borough Hospital. March 20th, H.F. ill here, Borough Hospital. March 28th, H.B. ill here; Borough Hospital; and Inspector called early next day, before the other boys had gone out, and found two of them peeling– one, aged 9, rather freely, the other nearly done. These two had never been suspected of Scarlet Fever. On calling to remove the first of these, he had bolted, and was found playing with other children over a mile away. From here he also bolted and was ultimately caught by a neighbour and taken to the Borough Hospital.

A.O., reported on March 28th, by a Doctor, as being ill with Scarlet Fever; had been taken ill on the 23rd; found by Inspector running about neighbours' cottages; refused removal; a neighbour then took the child to another doctor, and stated that he said it was not Scarlet Fever. I found the child peeling freely on April 7th, and removed it by a Magistrate's order. Another case was infected from this child

A.B., ill March 20th. General dealers shop, sweets sold; March 23rd, Inspector inquired here, and mother told him child had had Measles, the child was then about in the streets; Inspector cautioned mother and told her the child must be kept in one room; March 30th, found child playing in street; April 6th, same again, and found child peeling; I visited on April 7th, found child *peeling freely, and in the shop handling the sweets exposed for sale on the counter.*

M.K., taken ill on March 29th, parents thought Measles, Inspector found peeling on April 11th.

T.J.R., ill April 10th; W.G.R., April 17th, said to be Measles, sent to school May 1st, both peeling freely, and one with nose, the other with ears discharging; found through a case occuring next door.

B.G., ill May 18th; mother thought nothing of it and continued sending children to school; found peeling freely on June 6th.

L.T., ill June 25th; father said measles. July 5th Inspector found in street, and heard H.T. had been ill since July 3rd; on his advice a Doctor was sent for, who certified both as Scarlet Fever.

G.D., ill August 7th; removal declined on the grounds that he was the only child in the house. September 15th found out playing with other children while still peeling.

R.W., ill August 22nd; 3 days in bed, no Doctor, found by Inspector, on August 28th, peeling and playing with other children; had been at school that day. Parents at first denied any illness.

W.G., ill August 7th; seen once or twice by Doctor; Mother said he called it Quinsy; on September 4th, found peeling freely by Inspector. Medical Officer's deputy saw the child and cautioned his mother, who was very abusive; she had the child in neighbouring houses after this; a case occurred in one of these houses.

The above are instances of the more glaring cases which are fortunately a minority of the total; in the cases in which the neglect appeared culpable, prosecutions were ordered and convictions obtained. Beyond these there is, in a majority of cases, delay and neglect enough to make the chance of infection being spread, before removal, a very considerable one. In many instances such infection has been traced. For this reason we frequently find second and third cases occurring in a house after a removal; this mis-chance is favoured by the difficulty of thoroughly disinfecting in many of the houses.

The actual source of infection was traced during these three Quarters in the East in a much greater proportion of cases than usual.

The increased number of cases in the Fourth Quarter was not due to any special outbreaks; with one exception, to be alluded to later, the cases were in very small scattered groups. The direct source of infection was not traced in anything like so large a proportion of cases as during the first Three Quarters; partly perhaps because the greater pressure of work (increased too by the slight prevalence of Measles) gave less time for looking into them. The following were amongst the worst cases of over-sight or neglect.

J.A.B., reported by Doctor on December 1st.; on Inspector calling to inquire, he found an elder sister, who had charge of the housekeeping and

shopping, (mother being dead) peeling freely. She said she had only been slightly ill a fortnight back; been going about freely; "thought the peeling was the scurvy," (this girl was subject annually to a form of skin disease which afterwards showed itself before she left the Borough Hospital, so her mistake was not un-natural.)

A.T., found in street by Inspector peeling freely; mother said child had been ill with "Influenza" 3 weeks ago.

C.P. found peeling by Inspector, 2 brothers then attending school; this case had been concealed and parents were fined for neglecting to report; the mother apparently knew that it had been a case of Scarlet Fever.

At the close of the Quarter there was a decided falling off in the number of cases in the East.

In the West the prevalence of Scarlet Fever during the first Two Quarters was considerably above that in the East, but was still of little consequence, in the Third Quarter the cases were only a few above the East, the increase not being so great as there. There was a further and much greater increase in the Fourth Quarter, but the number of cases were much below those in the East. Hospital isolation in the First Quarter was very complete; in the Second not quite so much, but the six cases kept at home were in fair circumstances; of the nine cases kept at home in the Third Quarter, one died the day it was reported, the other eight had fair home facilities for isolation. Cases of ignorance and neglect are not so common as in the East, but the following are startling enough:—

K,E., taken ill about December 20th, '92; Jan. 18th peeling freely; washing taken in; "not known to have had Scarlet Fever."

C.L., ill January 2nd; Doctor saw on 31st, and found peeling and reported.

F.X., ill on February 20th; Doctor reported 22nd; Inspector found with rash fully out; "about to go to Turkish Baths."

T.F., ill on April 15th; taken to chemist who thought it was Mumps; a fortnight later reported by School Attendance Officer and found peeling.

J.P., ill on September 3rd; attended school 2 days, then reported through peeling being noticed by mother.

B.O., ill November 4th; B.J. and B.F. on November 11th; B.A.M., Dec. 1st; last case very ill, and Doctor sent for December 7th who found others all had had Scarlet Fever.

W.A., ill November 28th; came from school with rash; no notice taken of this; December 16th, W.B. taken ill, then Doctor sent for and reported both.

The mortality in the East is more than double that in the West (17 in 301 as compared with 8 in 322); possibly the greater average debility of the children in the East may contribute to this.

Three causes have been given for the failure of Hospital isolation to more completely stamp out Scarlet Fever. First, ignorance and culpable neglect, as illustrated in the cases given; this ought to be a more or less removeable cause. Second, the ordinary delay and oversight which in the majority of cases ensues between the onset of illness and the removal of the patient; this cause ought to be partially removeable. Third, the impossibility of anything approaching a real disinfection in the poorer class of houses. A fourth cause, and one much less removeable, but fortunately also much less common, exists in the obscurity of some cases of Scarlet Fever; through one or other of its usual symptoms being deficient it is in some cases, especially at first, difficult to be sure of it, and as the doctor is often only in attendance for a short time cases will get overlooked; this has occurred in the following instances:—

Three children ill, a week later a fourth, a week later a fifth. Doctor did not recognise, and supposed Erysipelas, gave them permission to go out; all found freely peeling. There must have been want of due care here.

A child ill on August 3rd, doctor attended a few days; another ill on the 12th, no doctor; another on the 20th, seen by another doctor once; on the 24th all were found peeling; the second case and another child from the house then at school.

A child ill on August 3rd, rash indefinite, doctor thought Measles, a second ill on the 8th, doctor saw once and thought Measles. A fortnight later these children were taken to Aberystwith and back. Found peeling freely on the 24th.

Two children were reported as Diphtheria by a doctor; shortly after, another doctor who was called to attend the father with an injured arm, noticed them peeling. A large number of cases were apparently infected by these children. Later the father was found peeling, and with bad kidney mischief, and he said that he had had a slight sore throat some time after the children.

A doctor attended a lad for nearly a week, and, having a little suspicion of the case, kept it isolated; the doctor was then dismissed, and the boy, seeming well, was allowed up and sent to school; peeling detected by the master, the boy sent home and taken to the doctor's surgery, who then reported it. It would be wiser to report suspicious cases in the first instance, with a note that they were doubtful.

Two children ill on October 27th and November 1st, attended for a very short time by a doctor as Mumps; nine days later found peeling by Inspector.

A child ill on November 1st, attended for a few days by a doctor as Influenza, six days later another lad ill; four days after this the first found peeling by Inspector, who then detected the second case.

A young man seen by doctor a few times and reported as Diphtheria, nine days later attended amongst the General Hospital Out-patients with the skin hanging off him in shreds.

A doctor saw a lad a few times and supposed him to have an ordinary cold with slight sore throat; two weeks later found peeling; another child from the house attending school all the time.

If we remember the difficulty always attending the diagnosis of obscure cases, and how this is enhanced by inaccurate accounts, defective light, and personal dirt, it will be a matter of some surprise that we have only had the above 9 mis-chances out of over 600 cases reported.

During the year 66 cases were treated at home; all of these had fair facility for home isolation, most of them had abundant facility. The following is a brief summary of the known results:—

In 4 instances the cases were very doubtful.

In 4 instances death occurred within a day or two.

In 10 instances there were no children in the house except the patient.

In 2 instances three consecutive cases occurred in the house.

In 10 instances two consecutive cases occurred in the house.

In 1 instance three neighbouring cases were apparently infected.

In 1 instance two cases occurred next door.

In 1 instance the patient was out playing 39 days after being taken ill, then peeling freely.

The remaining 19 cases called for no special remark.

The above record of cases treated at home under favourable conditions, gives some idea of what would take place under the home conditions of most of our Borough Hospital cases had they not been moved. At the close of the year there were 22 cases in their homes (known to us); of these, 2 were doubtful. These cases were in sixteen different centres.

Diphtheria.—We have been apparently very free from Diphtheria, only 35 cases reported in the year; the proportion of cases to deaths is the same in each Sub-District, 14 to 2 in the East, 21 to 3 in the West. The total cases are too few to draw any conclusions from. The Quarterly distribution is singularly different in the Sub-Districts. The following is a brief summary:—

East. *First Quarter.*—1 case; came here ill from a distance. *Second Quarter.*—1 case; drainage defects. *Third Quarter.*—5 cases; 2 came here ill, 1 was associated with bad drainage, 2 unexplained. None of these cases were fatal. *Fourth Quarter.*—7 cases (2 deaths); 3 were quite unexplained, 1 was by ground made up of ash-pit refuse, 1 case was attributed to offensive smells from a street man-hole, 1 was at premises filthy from fowl keeping; in 1 case there was an escape of sewer gas in the yard from a defective bell-trap, but this was only in connection with surface drainage.

West. *First Quarter.*—6 cases; 2 in connection with sewer filth, 5 unexplained. *Second Quarter.*—4 cases (1 death); all unexplained. *Third Quarter.*—7 cases (1 death); 3 were associated with bad drainage defects, 1 was at very filthy premises, 3 were quite unexplained. *Fourth Quarter.*—4 cases (1 death); 2 may have been from direct infection, 1 was associated with bad well water, 1 was unexplained.

Typhoid Fever.—The cases and deaths for the last three years are:—

		1891.	1892.	1893.
East.....	Cases —	34	22	53
	Deaths—	5	6	7
West	Cases —	64	53	83
	Deaths —	11	9	16
Borough....	Cases —	98	75	136
	Deaths—	16	15	23

There is apparently a considerable increase of cases this year, and this is confirmed by the higher death returns; but, even with notification, we probably only hear of a minority of our cases, many escaping observation, and many seeing no doctor; 23 deaths would

indicate two or three hundred cases. The same conclusion is pointed by the disproportion between the Quarterly cases and the deaths this year, they are

East ...	Cases —7	10	28	8	West ...	Cases —19	10	31	23
	Deaths—1	2	2	2		Deaths— 2	2	7	5

As usual, there were frequent instances of apparently direct infection, and usually in connection with extreme dirtiness. As the infection of Typhoid Fever is limited to the discharges from the digestive canal, its communication directly from person to person ought to be easily avoided with care and cleanliness; and all cases of such infection are cases of readily preventable disease. During the year the following occurred:—In two instances 5 cases in one house; in four instances 4 cases in a house; in two instances 3 cases in a house; in three instances 2 cases in a house; one case had been nursing some Typhoid patients. All the above, except the last, were in very dirty circumstances, but there was no local condition to account for the disease. They are an argument for Hospital isolation of such cases. In several instances there was carelessness in connection with the Pan Closets. In one instance a lot of foul bed clothing was brought from a house from which some cases of Typhoid had been removed, and placed in a bedroom under circumstances of extreme neglect and dirt; the occupant of this room took the Fever.

Influenza.—There was a very slight prevalence of Influenza about April and May; cases were few and mild. During November and December there was a prevalence of a severer type, with the usual increased fatalities from Respiratory Diseases. 21 deaths were registered as due to Influenza during the year, 17 being in the last Quarter. We at no time had any approach to a severe epidemic.

Diarrhœa.—We had a terrible epidemic of Summer Diarrhœa. The Deaths (161) are far the highest we have ever recorded, and exceed all the other Zymotics put together (121). As many of the Deaths are registered under other headings the above is not really our total of Deaths from this cause; they probably exceeded 227 (see table No. 4). The causation of this Disease is still a matter for

investigation; some connection with ground temperature is suspected. This year (see table 3) the weekly mean of our one foot deep earth temperatures first exceeded 60° the week ending June 24th (63°·3); it kept over 60° until September 9th. These temperatures and the Diarrhœal Deaths are as follows :—

Week ending	June 17th.	June 24th.	July 1st.	July 8th.	July 15th.
Temp.	59·1	63·3	60·4	63·3	61·7
D. Deaths	3	5	5	15	20
Week ending	July 22nd.	July 29th.	Aug. 5th.	Aug. 12.	Aug. 19th.
Temp.	62·0	62·6	62·2	63·1	66·6
D. Deaths	25	17	19	15	10
Week ending	Aug. 26th.	Sept. 2nd.	Sept. 9th.	Sept. 16th.	
Temp.	62·7	60·0	60·5	56·6	
D. Deaths	13	14	10	9	

After this the deaths rapidly diminished (see table 4). As illness would precede death by some days, and the death might be some days unregistered, the above death figure should be thrown back some week or two to represent the incidence of illness. There then would seem considerable association between the high temperature and the amount of Disease. The following indicates the same thing; (my meteorological records only go to 1884).

	Weekly Mean 1ft. Earth Temp.	Diarrhœa Deaths.
1884—10 weeks over 60°, Maximum 64°·5	... ...	141
1885— 5 ,,	... ...	50
1886—10 ,, Maximum 65°	... ...	149
1887— 9 ,, ,, 64°·5	... ...	105
1888—Never reached 60°	... ...	60
1889—10 weeks over 60° (not consecutive)	... ...	84
1890— 7 ,, ...	... ...	68
1891— 4 ,, ...	... ...	105
1892— 1 ,, ...	... ...	55
1893—12 ,, Maximum 66·6	... ...	161

With the exception of 1891 there is a considerable relationship between the temperatures and the deaths.

The practical point in connection with Summer Diarrhæa is the fact that it is certainly caused by germs taken with food or drink, and may be prevented by destroying or excluding such germs. This is best done by heat, all food should as far as possible be *recently* cooked, and especially *milk and water* should be *recently* boiled before drinking. All suspicion of taint in food of any kind should be avoided. A pleasanter way of purifying drinking water is by means of germ excluding filters such as the "Chamberland" or the "Berkfield." Unfortunately such advice is of little use to the very poor, amongst whose children this disease is so deadly, but certainly they might be usefully taught much better knowledge of the elements of child feeding than they at present have.

BOROUGH HOSPITAL.

The Quarterly numbers dealt with have been as follows:—

Quarters.	Remaining in from previous quarter.	Total Admitted.	Total Discharged	Died	Average No. of days in of the cases Admitted.
First ...	63	58	84	...	52·9
Second ...	37	108	74	3	47·0
Third ...	71	164	128	4	44·6
Fourth ...	107	259	254	11	44·2
Year ...	63	589	540	18	45·7

Leaving 112 cases in at the close of the year, thirteen of the admissions were from the Tettenhall District; nineteen from the Heath Town District; and three from the Cottage Homes, at Wednesfield.

In each Annual Report I give the summary of results for the cases actually admitted during the year, such a summary takes no account of the cases remaining in from the previous year, and includes some of next year's work as regards cases remaining in at the close of the year considered. For simplicity's sake I take the cases admitted Quarterly. *First Quarter.*—Of the 58 cases admitted two were not Scarlet Fever; one some simple febrile attack, was discharged after 22 days when no peeling appeared; the other was a very severe case of Pneumonia, and took Scarlet Fever 26 days after admission, recovered. In three other cases, where the diagnosis seemed unquestionable, Scarlatinal rashes appeared 11, 7, and 9 days after admission. Ten cases had Mumps, being a continuance of an outbreak from the previous Quarter. Seven cases were severe, two were very severe; one of these last was complicated with Empyæma, was removed to the General Hospital for operation on March 2nd, and died there on March 7th; this should count amongst our fatalities. One other case was fatal, 4 years old, Cellulitis of Scalp and extensive sloughing; severe hæmorrhage from throat; 30 days in Hospital. Our other complications were, severe suppuration of neck, one case, (75 days in); Rheumatism, 1 case; Conjunctivitis 1 case, (81 days in); nasal discharge 3 cases, (55, 68, and 74 days in); ear discharge, 1 case (64 days in); tedious skin rash 2 cases (54, and 61 days in); tedious peeling 2 cases (64, and 66 days in).

Second Quarter.—108 cases admitted. 2 were Small Pox; these fortunately occurred early in the Quarter, before the greater pressure of Scarlet Fever. They were isolated in the Wooden Annexe, the Old Pavilion being then empty, so that they were fairly well apart from the Scarlet Fever cases in the New Pavilion. Later we had to occupy the Old Pavilion, as well as the New, with Scarlet Fever. Nine cases were not Scarlet Fever, being sent in through error. One of these was a case of severe acute Pneumonia in a child 18 months old, who died 16 days after admission (a brother, admitted same time, was a well-marked Scarlet Fever case). Another case, an adult, was discharged after 23 days, showing no signs of peeling. The remaining 7 cases all took Scarlet Fever 2, 5, 6, 13, 16, 27 and 39 days after

admission; they all did well. Thus 104 cases of Scarlet Fever were actually treated. Three were fatal; one, 4 years old, died after 15 days with Pyæmic symptoms; one, $2\frac{1}{2}$ years old, did fairly well for 8 days, then had convulsions, and died rather suddenly; the third, 6 years old, was a severe case, but did well until 40 days after admission, then severe Cellulitis of the Neck set in, with Membranous Pharyngitis, and death ensued in 5 days. Five other cases were very severe; 6 were severe. The complications were: Suppuration, 2 cases (one 71 days in); nasal, or ear discharges, 11 cases (average stay 58·7 days); there was rather tedious peeling in 5 cases (longest stay, 67 and 70 days).

Third Quarter.—164 cases admitted; of these 3 were discharged 24, 24, and 37 days after admission, showing no signs of Scarlet Fever. Four cases took Scarlet Fever after admission; one (sister of one of the cases discharged with no signs) was very ill with Measles when admitted, had Pneumonia 4 days later, and Scarlet Fever 2 days after that; the other cases had Scarlet Fever 8, 19, and 20 days after admission; all these did well. One case of Scarlet Fever was removed by parents the day after admission. Thus 160 of the cases admitted were under treatment for Scarlet Fever. Of these 5 died, 2, aged 3 and 13 years, from severity of attack (1 and 13 days in); 2, aged 2 and 3 years, with Pyæmic symptoms (15 and 23 days in); 1, aged $1\frac{3}{4}$ years, a very severe case, did fairly for 22 days, then had severe Cellulitis of Neck and Membranous Throat, and died in 2 days. Ten cases were very severe, 12 were severe. Complications were: Acute Rheumatism, 3 cases; Pneumonia, 1 case (47 days after admission severe attack, 87 days in); Suppuration, 3 cases; tedious nose and ear discharges, 11 cases (one 87 days in); one case was 72 days in from tedious peeling; 8 other cases were delayed from the same cause. Through inadvertence, 2 cases of Scarlet Fever were sent together in the Ambulance from Heath Town, one having also Chicken Pox; this we isolated at once, but the other developed Chicken Pox 3 days later, and 17 days later 3 other children had it; 1 of these was 71 days in in consequence.

Fourth Quarter.—Of the 259 cases admitted 2 were Small Pox, 257 cases of Scarlet Fever were admitted and treated. Nine of these were fatal; 3, (ages 2, 5, and $5\frac{1}{2}$ years) due to intensity of attack (3 days, 4 days, and a little over an hour in Hospital); 4, (ages $1\frac{3}{4}$, 2, 2, and $3\frac{1}{2}$ years) from severe throat trouble (8 days, 3 days, 13 days, and 5 days in Hospital); One (aged $1\frac{1}{2}$ years) from hemorrhage from nose and bowels (8 days in Hospital); the ninth case was a very weakly child 3 years old, with chronic bowel mischief (tubercular) he got through a severe attack of Scarlet Fever but after 28 days died apparently from the chronic condition. Twenty-one cases were very severe, some of them terribly so; thirty-four were severe. The main complications were, Acute Rheumatism, 6 cases: Pneumonia, 1 case; Suppuration, 3 cases; Albuminurea, 2 cases (one came in with); severe or tedious discharges from nose or ears, 21 cases, some of these were very tedious, 57, 62, 65, 70, 75, 90, 93, 93, 97, and 101 days being the longest cases; fewer cases than usual were delayed by slow peeling, 6 averaged 55 days in from this cause alone. We had a large number of severe secondary throats, almost Diphtheritic in character, and causing much trouble and anxiety. These are apt to occur with Scarlet Fever cases when there is any over-pressure: and as for 62 days the patients exceeded 120, on 21 were over 130, and once reached 138, it is not surprising that we had this complication. In consequence of the pressure we had to erect a Hospital Marquee which was a great relief to the wards. The effects of the crowding were more felt through the weather not admitting a very free airing of the wards.

It is a most remarkable circumstance that in the 257 cases this Quarter there was not a single error of Diagnosis. An accurate Diagnosis of Scarlet Fever is often impossible, especially amongst the very poor, and yet it would be disastrous to leave such a suspected case at home should it turn out to be Scarlet Fever, in such cases it is far better to let the individual run some risk rather than the community. When it is notified to us that a case is doubtful we always (where possible) quarantine it; we have not always been able to do so, owing to the wooden annex being otherwise occupied. It

must be remembered that a case being once reported as Scarlet Fever it is frequently impossible for another doctor to confirm, and always impossible for him to deny the diagnosis for a time. The typical rash may be transient, and when the second doctor sees the case there may be no certain evidence of Scarlet Fever until peeling commences, and that may not be for three weeks. I am sorry to say that on a few occasions we have had much trouble through want of tact in this particular; parents unwilling to believe in the existence of Scarlet Fever, after a few days have had another doctor's opinion, and he has incautiously stated there were no signs of Scarlet Fever, without the qualifying remark that it might be present; in all of such cases we had free peeling later. Several cases admitted in the Quarantine Ward at the Borough Hospital, and having no signs then, peeled subsequently.

Seven cases were attended by their own doctors during the year; four doctors so attending.

There were treated during the year 578 cases of Scarlet Fever at the Borough Hospital, of these 19 (including the case that was removed for operation to the General Hospital, and the case of Tubercular Enteritis) died, less than 3·3 per cent.

I think the above record of work done speaks sufficiently for itself; no comments can convey any further idea of the amount and value of the work; only some personal intimacy with it can do that. I must add that the success of our treatment is mainly due to the excellent nursing and care of the Matron and her staff.

It has been stated that infection has been conveyed by patients discharged from the Hospital in an undue proportion of cases; this has not been so. Of course it is humanly impossible to insure that a patient leaving such an Institution, especially when it is crowded, should not carry some germs on his person; it is the rule in some Scarlet Fever Hospitals to advise that discharged patients should not sleep with or have any close contact with others for a few days after going home. During the past year there have been several instances where infection was apparently conveyed home but they have been

exceedingly few; I give a summary of every instance in which cases occurred at houses to which patients returned, and it will be seen how few the probable infections were, and how absurd it is to conclude that a second or third case must necessarily have arisen from the first.

A, a second case in 55 days.

B, ,, ,, 18 days; 13 days later, a third; 3 days later, a fourth.

C, a second case in 100 days. D, a second case in 61 days.

E, ,, ,, 2 ,, F, ,, ,, 35 ,,

G, ,, ,, 3 ,, H, ,, ,, 2 ,,

I, ,, ,, 23 ,, J, ,, ,, 10 ,,

K, ,, ,, 6 ,,

L, a second and third (fatal) case in 3 days, a fourth case 4 days later.

M, a second case in 4 days, a third 3 days later, a fourth (fatal case) 20 days later.

N, a second case, ill in a few hours.

O, a second case in 10 days. P, a second case in 8 days.

Q, four days after a case came home a sister returned home from a visit, 11 days after this she took Scarlet Fever, she was removed, and 14 days later another child took Scarlet Fever.

R, a second case in 4 days.

S, X, admitted to Borough Hospital, after 24 days quarantine proving not to be Scarlet Fever, was discharged; 33 days later Y took Scarlet Fever and was kept at home; 16 days later X took Scarlet Fever and died.

Infection could only be taken home by a discharged case in three ways, 1st in his own body, through his not yet being thoroughly free. 2nd in his clothing through some defect in disinfection. 3rd by some germs settling upon him (as dust) after he had been cleansed for discharge. I am confident that in none of our cases was the first cause operative, the stay in the Hospital was too long, and every case is carefully examined by myself before I discharge it. The second cause may occasionally exist, I have had some reason to doubt if the Disinfecting Stove is always thoroughly reliable, and when very full and worked under such pressure as we have had it is quite possible

it may at times partially fail, so that some of the clothing in it might still contain germs undestroyed. The third cause would be a *very* rare accident, but of course might occasionally be possible. The period between a person being infected with Scarlet Fever and showing the rash is of variable length, usually about 4 days, may be 7 days, but is rarely longer, in some exceptional cases it has lasted 14 days, but this is *very* rare; it is often shorter than the average 4 days, 3, and 2 days not being uncommon, cases of only 24 hours have been recorded, but they are also very rare. Of course if the infection was in clothing it might be inoperative for some time, I mean it might not actively infect at once, might not be shaken out of the clothing so as to attack another; but this would not be for long. Remembering these facts it will be seen at once that A, C. D, F, I, S, are cases in which the time was too long for any possible chance of infection from the discharged patient; but these all show the fallacy of supposing that a second case necessarily implies such infection. S is almost absurd to mention, and I would not have done so had not this very case been cited as an instance of our sending out infection. In N, the duration is too short, (in another instance a second case occurred about 12 hours *before* the first case returned from the Hospital, had this accident occurred a few days later infection would have been attributed to us). In Q, infection was most improbable, during the four days which intervened between the patients discharge and the sister's return home, any infective dust would probably have been lost; and the further period of eleven days before the second illness renders the infection very unlikely, the third case 14 days later would render some other source still more probable. In B, the period is almost too long, but moreover we found that some cases that had been treated at home when out for their first walk met and kissed these children, and also two other children, and these other two children took Scarlet Fever as well as cases B. In L, infection may have been from the discharged patient, but we found later that the second case had been having secret interviews with the first before the latter left the Hospital, and this was a far more probable source of infection. In E. G, H, K, R, infection was probably from the discharged patient; in J. O. P possibly so; in M the second case was probably

from the discharged patient, the third case was probably from the second (both these were kept at home); the fourth fatal case was certainly from these. We see as the final result that out of 540 patients discharged 6 probably conveyed home infection, and 3 more may possibly have done so. This is an exceedingly small proportion; and it must further be remembered first, that in more than three-fourths of our cases we cannot trace the infection at all, and in the above nine instances infection may have been from other unknown sources. 2nd, infection is active at the very commencement of the illness, and it may be that some books or toys or clothing used by the first patient, and supposed free from infection, have been put by until the patient's return home, and then taken out and caused fresh infection; for the infection of Scarlet Fever, when kept quietly by, may retain its activity for many months. Taking everything into account we must conclude that most probably 3 and very probably more of the above nine were infected from other sources, and that therefore the chances are more than 100 to 1 against infection being conveyed by a patient discharged from the Hospital.

Disinfection.—The Quarterly number of articles stoved have been, 2,148; 2,145; 3,121; 7,007; 14,421 in the year. Rooms in 406 Houses and 10 vehicles have been disinfected with sulphur fumes.

METEOROLOGY.

(See Table 3.)

First Quarter.—During this Quarter we had exceptionally fine weather; for the first fortnight there was constant frost, at times very severe (lowest temp. 9·8 deg.); during the third week there were constant night frosts, days rather mild; for the rest of the Quarter the day temperature was very mild, at times peculiarly so (highest in the shade 65·3 deg.), but there were frequent cold winds and occasional frosts at night; for the last three weeks, during which the day temperature was highest, night frosts were the rule.

The Rainfall was low, 5·11 inches. There were some rain-storms in the fifth week, rather heavy rains in the eighth week, and a few occasional showers ; for the last four weeks there was practically no effectual rain (only ·47 inches).

The Humidity (88) was moderate for the season and situation (the Observatory is low, and on a clayey site) ; there were slight fogs during the second and ninth weeks.

The Barometer was high and very steady, except from the fifth to the ninth week inclusive, when there were considerable variations.

Second Quarter.—For the first fortnight we had a continuance of rather sharp night frosts, harsh Easterly winds, and very hot sun ; the frosts becoming gradually milder, and during the second week less frequent. During the second fortnight the days were almost sultry (max. shade temp. 77·4) ; the nights were cold ; frequent cold Easterly winds persisted. During the next six weeks the same sun heat continued, the days being usually very hot and close, the nights still cool, but getting gradually warmer ; the wind was temperate—usually Westerly. The last five weeks were very sultry, maximum shade temp. ranging about 85°, the temp. in the sun being over 104° ; the nights were close and oppressive ; warm winds, variable direction, Westerly the first and last weeks of the five, Northerly and Easterly the middle three.

The Rainfall, or rather the lack of it, was remarkable. For the last four weeks of the First Quarter there was practically no rain (0·42 ins.). During the first six weeks of the Second Quarter there was a similar drought, the only rain being a few partial showers (0·57 ins., so that for ten weeks the total rainfall was under an inch). On the seventh week there was heavy rain twice, and rather frequent showers (week's rainfall 1·66 ins.). Eighth week, very slight showers on two days ; ninth, slight showers on two days ; tenth, a very few slight showers (three weeks' fall 0·33 ins.). During the eleventh week there was one severe thunderstorm (on June 14th) ; during the closing fortnight there were showers on seven days. The total rain-fall for the Quarter was 4·12 ins. ; very low for the season.

The mean Humidity for the Quarter was only 81.

The Barometer was usually high and steady ; it was variable and low on the seventh week, and during the closing fortnight.

Third Quarter.—The weather during the Third Quarter has been phenomenally fine. The close of the Second Quarter had been very sultry, this temperature was more than maintained, reaching its highest on the seventh week (ending August 19th) ; the mean temp. this week was 69·4° ; the highest maximum for the year was recorded 88·5°, (the highest previous maximum in my records since 1884 was 86·6° in 1885, the highest previous mean was 62·7° in 1884) the *mean* maximum for the week was 84·1°, the mean minimum 58·1°. The temperature slightly declined after this, but kept exceptionally high until the last three weeks ; the night temperatures then fell considerably, although the days were still as a rule very hot.

The most remarkable temperature was that of the earth at one foot depth ; for twelve weeks, from June 18th to September 9th, the weekly mean of this temperature was over 60° ; from July 16th to August 26th it was over 62° ; for the week ending August 19th it was 66·6.

The prevailing winds were Westerly ; and, for the season, the amount was, as a rule, considerable, rendering the high temperature more bearable. This remark, of course, only applies to situations somewhat similar to that of the anemometer in the Park, where our observations are taken ; the amount of wind passing through the more crowded parts of the town would be but a small fraction of what we record, rarely more than one-fourth, often far less than this.

The Rainfall was 5·08 inches. Not so phenomenally low as that in the previous Quarter, but still very low ; and, following the previous long continued drought, it gave rise to great general lack of moisture. We had severe brief thunderstorms on July 3rd, August 10th, and September 9th ; the rest of the rain fell in occasional showers.

The mean Humidity for the Quarter was 81, the same as for the previous Quarter.

The Barometer was moderately high and usually steady. On the first, eighth, and thirteenth weeks the variations were considerable.

Fourth Quarter.—For the season the weather was exceptionally fine. The temperature was generally mild; the coldest period was during November; all through the Quarter there was a tendency to rather rapid and extreme changes; severe night frosts were frequent during November and the first two weeks of December. Saturday, December 2nd, was an intensely cold day, the mean temperature being 23·8°, and the cold being intensified by storm.

The Rainfall was moderately heavy 7·16 inches; it fell, as a rule, in moderate showers, and frequently at night; there were few thoroughly wet days. There was a terrific storm with considerable snow on the 18th and 19th of November, and it was more or less stormy up to the 25th, thunderstorm on December 8th, rainstorm on 12th; wet and stormy for three days about December 19th.

The Humidity (91) was moderate. Fogs were scarcely noticed except during the last week, and then only slight.

The Barometer was high and fairly steady until the November storm, when there were great and sudden variations; the same thing occurred in the tenth, eleventh, and twelfth weeks. The general tendency was high.

The total Rainfall for the year was only 21·47 inches.

Explanatory Remarks on the Tables.

The Returns made by the Registrar for the East Sub-District include all deaths occurring in the General Hospital and Workhouse; many of these are from outside the Borough, a few are returned as "no home," the others are of persons from the East and West Sub-Districts. Throughout the Tables the few cases returned as "no home" are included in the East figures; the deaths from outside the Borough are excluded altogether (except in the uncorrected figures in Table 8), and the deaths from the East and West are referred to

their own Sub-Districts. Particulars of these deaths in the Hospital and Workhouse are given in Table 7. In Table 8 the comparison between the Sub-Districts in all years before 1884 is misleading, as the East deaths include many really belonging to the West; the second row of figures in each year since 1884 are the corrected returns, the first row (given to compare with former years) are the Returns as sent in by the Registrars.

Table 10 gives our comparison with the other 32 great towns. The third column in this Table does not give the actual death rates, but the rates corrected for the age distribution of the populations. The death rate varies in the different age decades, for instance is very high under 5 years and over 60 years; comparatively low between 20 years and 40 years. Thus a district whose population consisted of persons under 5 years and over 60, with a death rate of 40, might be far healthier (as far as death rate is an index of health) than a district whose population was between 20 years and 40, with a death rate of 10. In the third column in Table 10 the rates are what they would have been had the age distribution in each town been the same as in England and Wales, and are therefore a much more accurate comparison than the actual death rates; the mortality figures in the four th column are based on the corrected death rates.

Vital Statistics.

Table 10 gives our comparison with the other 32 great towns. Our corrected death rate is twenty-fourth on the list, being a shade higher than Birmingham, which is twenty-third. Our Zymotic death rate is well below the average, we are fourteenth. Measles below average, fifteenth. Scarlet Fever above the average, twenty-fifth. Diphtheria, fourth. Whooping Cough, first. Diarrhœa, twenty-seventh. Our Infantile deaths have been very high, due no doubt to the Diarrhœa. In the deaths under one year to a thousand births we stand twenty-seventh (same as Diarrhœa).

In Table 9, columns 1893 and A give the comparison with our previous ten years average. The death rate and the Zymotic death rate are both above the average, deaths over 60 years are a little above the average, deaths under 1 year greatly above, and between 1 and 5 a little above the average. Measles, Whooping Cough, and Diphtheria are all below, Scarlet Fever and Typhoid Fever above the average, Diarrhœa is enormously above, and Phthisis and Respiratory a little above the average. The excess in Diarrhœa alone would, if removed reduce our Zymotic rate to far below the average.

Table 9A shows that the year's excess is altogether due to the Third and Fourth Quarters, to Diarrhœa affecting children in the former, and to Respiratory Diseases affecting old persons in the latter.

Table 8 gives the most startling fact in our statistics, we see there has been a slight increase in the West Sub-District rate (0·4) it being 18·0, but the increase in the East has been 2·6, and the difference in the Sub-District rates this year is 8·6, the greatest previous difference was 6·8. In order to appreciate the meaning of a difference of 8·6 it should be noted that this rate means 336 in the East or 388 in the West, that is to say supposing the West rate had been 8·6 higher it would have meant 388 more deaths in the West, or supposing the East had been 8·6 lower it would have meant 336 less deaths in the East.

In Table 6 we have the detailed differences. The main points are : Diarrhœa, excess of East, 25 (23 of these below 5 years of age). Constitutional diseases, East excess, 55 (57 in children, 5 in middle age, over 60 years, West excess, 7). Old age deaths, under 75 years, East excess, 26 ; 75 and upwards, West excess, 11. Respiratory diseases, East excess, 87 (the excess is at all ages). Digestive diseases, East excess, 9 ; this is due to Enteritis (excess 17), in other items the West exceeding ; the Enteritis may be put under the heading of Diarrhœa. Debility, East excess, 10 (all under 1 year). Not specified causes, East excess, 25, at all ages. In considering these figures the relative populations and the relative proportion of children must be remembered. The populations are, East and West, about as 13 to 15 ; and

there is a larger actual child population in the East than in the West ; the East births this year exceeding the West by 92 (had the East birth-rate been as low as the West, there would have been 175 less births in the former, the rate difference being 4.5). The broad conclusion drawn from the above figures is the same as in other years ; greater feebleness, less protection, and less care, in the East.

Referring to Tables 4, 5, and 9A, we see the Quarterly details.

First Quarter—Death-rate low (3·7 below the average of ten corresponding Quarters). Zymotics very low ; Chest affections low. Deaths over 60 years very low for the first Quarter, and deaths between 1 and 5 years low ; deaths under 1 year rather above average. The difference between the East and West death-rates is 7·3 ; this is due to moderately high East rate and exceedingly low West. The difference is due to an East excess of 50 in Phthisis and Chest Affections ; the East being moderately high, the West exceedingly low. The unusually fine weather of this Quarter is the general explanation of the above ; the only drawbacks, rapid variations of temperature and cold winds, being probably sufficient to unfavorably affect the poorer and more exposed Sub-district.

Second Quarter.—The death rate is moderately low, (1·3 lower than the ten previous corresponding Quarters) ; although actually lower than the First Quarter it is not so low for the season, the Second Quarter being usually the least fatal of the year. The slight fall is due to a reduction in Respiratory deaths, mainly affecting ages over 60. The difference between the Sub-District rates is increased to 9·8 ; the West being a low rate, but the East a very high one for the season.

The high mortality in the East existed through the whole Quarter, the only remission being during the second half of May; there was much sickness in the Borough generally, severe Catarrhal affections and Pneumonia being very general, and some Influenza also present; we had, too, great prevalence of sore throat, and Chicken Pox and Mumps were epidemic. Doubtless, one cause of much of the prevalent illness was the extreme variation in temperature ;

although apparently a period of exceptionally fine weather this was not actually the case during most of the Quarter. Excessively hot days became chilly the moment the sun went down, and even when the sun was unbearably hot we had really severe winds; such a state of things is very unhealthy. But a still more serious element was the absence of moisture; not only during the long drought would all the streets, courts, and yards be deprived of their usual cleansing from rain, and the drains generally be in a much filthier condition than when rain flushed; but the general dryness would encourage formation and distribution of dust, in which the germs of disease would be scattered.

It is easy also to see why these influences should act most in the East; poverty would render it more susceptible to changes of temperature; the general dirt of its numerous courts, all of which would miss even the advantage of the street watering, readily explains its greater susceptibility to the drought influences. This condition of things really commenced during the closing weeks of the First Quarter, when a similar drought prevailed in a less degree.

Third Quarter.—Death rate very high, Zymotic death rate very high. Respiratory Diseases are exactly half the Second Quarters; Phthisis is considerably increased. Children under 1 year increased from 99 to 232, from 1—5 years from 34 to 71. Deaths over 60 years are fallen from 118 to 91, but the latter is very high for the season (ten years average for corresponding Quarters is 72·7). Diarrhœa deaths 140. The difference in the Sub-District death rates is 9·3.

Comparing the deaths at different age periods in the Sub-districts we find, over 60 years, East 41, West 50; this is practically accounted for by the returns from old age, there being 15 such returns over 75 years in the West, against 6 in the East.

Between 5 years and 60 we have 74 deaths in the East, 67 in the West; this is not a great disparity, Phthisis and Respiratory deaths were rather more in the East, and there were 6 accidental deaths to 1 in the West; Typhoid Fever was more in the West, 7 deaths to 2 in the East.

The difference in the Sub-districts, and the excessive total deaths are really almost altogether due to the returns under 5 years of age. And these returns are due to the epidemic of Diarrhœa, which has been already commented on. Its effects are more fully seen in Table 4, in which such entries as Enteritis, Enteric catarrh &c. are included under the heading Diarrhœal returns. We have 109 (104 under 5 years) such deaths in the East; 69 (66 being under 5) in the West. Besides this there are 15 deaths this Quarter from Phthisis and Marasmus under 5 years in the East, only 1 in the West. These are probably some Diarrhœal, others due to constitutional feebleness.

The (for the Third Quarter) rather high returns from Phthisis and Respiratory Diseases and of old persons are probably due to the effect of the excessive heat on feeble persons.

Fourth Quarter.—The death-rate is still excessive (3·6 higher than average of ten corresponding Quarters) but the items are reversed. Diarrhœa has almost ceased; Respiratory diseases are very high; the Zymotic rate is high, and due to Measles, Scarlet Fever, Typhoid Fever, and Influenza. The deaths over 60 years are very excessive, under 1 year excessive, 1 and 5 years very high. Above remarks apply to both Sub-Districts, but in every particular except deaths over 60 years, the East exceeds the West. In Constitutional diseases also the East has a much higher fatality among children. Hence the West has a moderately high death-rate (21.3); the East terribly high (29·2). The general explanation is found in three causes: Influenza, causing lung mischief; great weather variations doing likewise; and local conditions. The Influenza and weather would prove most fatal amongst the feeble and least protected; these would be most numerous in the East, especially amongst children; but there would be more feeble persons of great age in the West, hence the excess of deaths over 60 years there, in fact this excess is confined to deaths over 75 years.

Sanitary Condition of the Borough.

There is but little to add to former Reports. The Water-Carriage disposal of excreta, and the efficient removal and disposal of Ash-pit refuse are both questions of vital importance to the sanitation of a town, but neither seem likely to be definitely settled for us yet. With regard to the latter, it is useless reiterating what I have stated for years past on every possible occasion ; I will only refer to my reports for 1891 and 1892, and endorse every word on this subject in them.

As to the Water-Carriage of excreta there still seems much misconception ; a summary of the facts from the sanitary point of view is as follows. For a town such as ours the Water-Carriage System is the best system at present available, this is simply a statement of fact, there is no contrary opinion amongst those who know anything about the subject. As to details, there are three classes of closets to which the Water-Carriage may be applied under different systems. 1st In-door Closets, the only system suitable for such, is the Water Closet with efficient flush. 2nd, Out-door Closets efficiently protected from frost ; for these either Water Closets with efficient flush, or "Waste Water" Closets would be suitable. 3rd, Out-door Closets incapable of being protected from frost, for these the "Waste Water" Closets are alone suitable.

Now we have in Wolverhampton hundreds of houses with closets of the 2nd and 3rd class at present provided with pans, and in all of them the substitution of the suitable Water-Carriage System would be an immense sanitary gain. Of these houses there may be a proportion in which the carelessness of tenants, or of others where the closets are exposed, might throw difficulties in the way of adopting the Water-Carriage, but there remains a large number of houses and cottages (especially those more recently built) to which no such objections could apply, and in which the retention of the Pan Closets is a deplorable blunder.

The death rates of 17·6 in England and Wales less the 33 towns, and 23·3 in the 33 towns this year (see Table 10), do not differ by 5·7 so much because of any special prevalence of definite epidemic disease

in the towns, as because of the dirt of the latter. In a large town fresh air is so scanty in parts that every effort must be made to keep what there is as pure as possible, and this is not done by storing excreta for a week or more, or ash-pit refuse for months in our midst.

Unwholesome Food.—11 Cows, 8 Calves, 11 Sheep, 4 Pigs, 30 pieces of Beef, 28 Pigs Heads, 120 lbs. of Whelks, 180 lbs. of Chestnuts, 61 4-lb. Loaves, and three-fourths of a sack of Flour were destroyed as unfit for food.

Statistical Summary, 1893.

	East Sub-District.	West Sub-District.	Borough.
Area—Acres	828	2,697	3,525
Population*	39,134	45,229	84,298
Density—No. of persons per acre	47·2	16·7	23·9
Inhabited Houses	7,687	8,932	16,619
Rateable Value—Total exclusive of Government Property	£337,073 10s. 0d.†		
Marriages	No. 683 Rate 8·1		

	No.	Rate	No.	Rate	No.	Rate.
Births	1,497	38·3	1,405	31·1	2,902	34·5
Deaths	1,040	26·6	813	18·0	1,853	22·0
Zymotic Deaths	153	3·9	129	2·8	282	3·3
Infantile Mortality Deaths under 1 year per 1000 births	240		170		206	

*Estimated to the middle of 1893, the Borough is not quite the sum of the Sub-Districts being estimated separately.

†This is subject to the reductions made by Appeals and will probably be less when they are settled.

Index of Tables.

(See also Explanatory Remarks on the Tables on pages 27—28.)

TABLE No. I.

Cases of Infectious Disease heard of in 1893.

		East Sub-District, Population 39,134.					West Sub-District, Population 45,229.					Borough, Population 84,298.					Totals.			Rate per 10,000. of Population.		
		1st Quarter	2nd Qnarter	3rd Quarter	4th Quarter	Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year	East Sub-District	West Sub-District	Borough	East Sub-District	West Sub-District	Borough
Small Pox	Under 5 years	...	...	...	...	...	...	...	..	1	1	...	...	...	1	1	1	5	6	0·2	1·1	0·7
	5 yrs. & upwards	...	...	...	1	1	...	3	...	1	4	...	3	...	2	5						
Measles	Under 5 years	8	2	31	36	77	6	2	35	92	135	14	4	66	128	212	141	252	393	36·0	55·7	46·6
	5 yrs. & upwards	3	1	21	39	64	4	13	19	81	117	7	14	40	120	181						
Scarlet Fever	Under 5 years	9	12	25	42	88	16	23	31	37	107	25	35	56	79	195	301	322	623	76·9	71·1	73·9
	5 yrs. & upwards	11	30	52	120	213	26	40	53	96	215	37	70	105	216	428						
Diphtheria	Under 5 years	...	...	1	3	4	...	...	2	1	3	..	...	3	4	7	14	21	35	3·5	4·6	4·1
	5 yrs. & upwards	1	1	4	4	10	6	4	5	3	18	7	5	9	7	28						
Typhoid Fever	Under 5 years	...	1	3	..	4	3	...	..	2	5	3	1	3	2	9	53	83	136	13·5	18·3	16·1
	5 yrs. & upwards	7	9	25	8	49	16	10	31	21	78	23	19	56	29	127						

TABLE No. 2.

WEEKLY RETURNS under the Infectious Diseases Notification Act, and prevalence of certain other diseases.

A few cases x Prevalent xx Very Prevalent xxx

1893 Week ending	Small Pox	Scarlet Fever	Diphtheria	Typhoid Fever	Puerperal Fever	Measles	Whooping Cough	Pneumonia	Influenza
January 7th..	...	2	...	1	...	x	...	x	...
,, 14th...	...	5	...	2	..	x	...	x	...
,, 21st...	...	4	...	1	...	x	...	x	..
,. 28th...	...	5	...	7	1	x	x	x	...
February 4th...	..	6	...	1	...	x	x	x	...
,, 11th	...	3	1	..	...	...	...	x	...
,, 18th..	...	5	1	5	..	x	...	x	..
,, 25th...	..	1	1	...	...	x	...	xx	...
March 4th...	..	6	...	2	...	x	...	x	...
,, 11th...	...	5	...	1	...	x	x	x	...
,, 18th..	...	5	2	...	...	x	..	x	...
,, 25th...	..	9	1	3	...	x	...	xx	x
April 1st..	...	7	1	4	...	x	...	xx	x
,, 8th..	...	3	...	...	...	...	..	xxx	x
,, 15th...	...	4	..	1	...	...	...	xxx	x
,, 22nd...	1	2	1	5	...	...	...	xx	x
,, 29th...	...	2	...	3	...	...	x	xx	x
May 6th...	1	4	...	..	...		.	xx	x
,, 13th ..	...	6	...	3	...	...	...	xx	x
,, 20th...	1	7	...	1	1	x	...	x	...
,, 27th .	...	4	...	...	...	x	...	x	x
June 3rd...	...	15	..	1	.	x	...	xx	.
,, 10th...	...	12	...	2	...	x	...	xx	...
,, 17th...	...	8	2	2	...	x	...	x	...
,, 24th...	...	14	2	...	...	x	.	x	...
July 1st...	...	17	...	2	...	x	...	x	...
,, 8th...	...	10	1	...	1	x	...	x	..
,, 15th...	...	9	...	3	...	x	...	x	...
,, 22nd .	...	7	1	2	...	x	...	x	...
,, 29th .	...	4	1	1	...	x	...	x	...
August 5th .	...	10	1	3	...	x	...	x	...
,, 12th..	...	9	...	4	...	x	...	x	...
,, 19th..	...	9	...	6	...	x	...	x	...
,, 26th...	...	4	1	6	...	xx	...	x	...
September 2nd	...	13	2	7	...	xx	...	x	...
,, 9th...	...	20	1	4	...	xx	...	x	...
,, 16th .	...	27	1	15	...	x	...	x	...
,, 23rd...	...	12	3	11	...	x	...	x	...
,, 30th...	...	17	...	4	1	x	...	x	...
October 7th...	2	18	...	10	...	x	...	x	...
,, 14th...	..	36	2	6	1	x	...	x	...
,, 21st...	..	29	4	12	..	x	...	x	x
,, 28th ..	...	13	2	4	...	xx	...	x	xx
November 4th...	...	17	...	1	...	xx	...	x	xx
,, 11th...	...	23	2	...	...	xx	...	xx	xx
,, 18th .	...	16	...	1	1	x	...	xx	xx
,, 25th .	1	28	1	...	...	x	...	xx	xx
December 2nd...	...	25	4	4	...	x	x	xx	xxx
,, 9th...	...	34	...	1	2	xx	x	xx	xx
,, 16th ..	...	25	...	1	1	xx	...	xx	xx
,, 23rd .	...	17	...	1	...	xx	...	xx	xx
,, 30th...	...	11	...	...	...	xx	...	xx	xx
YEAR	6	604	39	154	9				

Tables 1 and 2 do not tally; 1 including many cases not reported by doctors, and 2 including some cases which ultimately proved incorrect.

TABLE 3,

Weekly Meteorological Report, from observations taken at 9 a.m. daily.

Week ending.	Barometer Corrected.		Humidity.	Temperature.					Rain.	Wind.		Death Rate per 1000 per annum.
							Earth.					
	Mean	Range		Max.	Min.	Mean.	1ft. Mean	4ft. Mean		Prevailing Directions.	Total in Week.	
1893.	in.	in.	0-100	°	°	°	°	°	in		Mls.	
January 7th...	30·122	·491	86	32 8	9·8	23·8	33·5	42·7	·42	N, SE, E	1076	24·7
,, 14th...	29·980	·595	93	40·5	21·3	31·3	33·6	41·4	·07	SE, NE, NW	1357	32·1
,, 21st...	30·156	·516	88	45·0	21·9	35·0	33·7	40·8	·21	SW, NW	1532	20·4
,, 28th...	30·010	·588	90	49·9	29·7	40·3	35·0	40·3	·55	NW, SW	1665	13·6
February 4th...	29·848	·911	94	52·4	34·1	42·8	39·5	40·7	1·13	SW, NW	1565	15·4
,, 11th .	29·902	1·117	87	51·8	28·0	39·5	39·4	41·6	·47	SW, NW	2253	14·8
,, 18th .	29·627	·728	91	51·3	30·6	39·7	39·8	41·9	·47	SW, S	1902	19·8
,, 25th .	29·337	·894	91	57·0	26·4	36·1	40·5	42·3	·92	S, NE, SE	1602	17·3
March 4th...	29·647	·913	90	55·0	23·4	39·5	39·4	42 2	·45	SE, S, NW	1983	16·0
,, 11th...	30 256	·193	89	61·1	32·3	43·8	42·8	42·5	·05	NW, W, SW	1537	17·9
,, 18th...	29·801	·596	81	62·0	29·4	42·1	43·1	43·3	·15	SW, W, NW	1799	15·4
,, 25th...	30·348	·167	77	63·3	21·7	43·1	41·3	43 6	—	SW, SE	623	16·7
April 1st...	30·041	·478	81	65·3	30·0	45·7	43·1	43·8	·22	SE, E, SW	1222	24·7
,, 8th...	30·261	·398	83	65·1	28·0	45 4	46·2	44·7	—	E, SE	1146	19·1
,, 15th..	30·336	·257	82	64·7	30·2	43·2	46·2	45·3	—	E, E. SW	1262	18·5
,, 22nd...	30·069	·286	78	77·4	36·6	52·8	49·3	45·8	·28	SE	1442	21·6
,, 29th .	30·015	·122	77	72·7	33·6	50·5	51·9	47·0	·03	E	1077	19·1
May 6th..	30·134	·445	81	75·0	35·5	50·9	51·8	48·0	·26	NW, SW	1276	19·1
,, 13th...	30·284	·253	69	72·9	34·1	51·2	54·3	48·8	—	NE	1334	24·1
,, 20th .	29·728	·516	89	71·7	43·0	53·3	55·3	50 0	1·66	SW, E, SW	1559	16·7
,, 27th .	29·955	·562	81	68·0	38 0	52·5	56·3	50·6	·04	SW, NW, N	1151	13·6
June 3rd...	30·032	·310	80	69·3	35·9	52·4	57·0	51·4	·22	N, NW, SW	935	20 4
,, 10th...	30·286	·233	88	71·3	44·5	55·8	57·2	52·1	·07	W, NE, E	1042	14·2
,, 17th..	30·103	·371	84	85·5	40·8	59·6	59·1	52·7	·42	E, NE	1187	22·2
,, 24th .	29·799	·965	79	85·0	44·2	58·1	63 3	53·8	·73	E, N, N	1084	16·0
July 1st...	29·832	·635	78	80·0	39 5	58·2	60 4	54·5	·41	SW, NW	1412	15·4
,, 8th...	29·891	·527	78	85 0	49·0	64·5	63·3	55·1	·28	SW, NE	1344	27 8
,, 15th...	29·734	·366	90	70 0	45·0	58·8	61·7	55·9	1 15	SW, NE	1036	34·0
,, 22nd...	29·773	·485	74	71·9	47 0	57 8	62·0	56 0	·38	NW	1262	30·9
,, 29th .	29 975	·377	81	73·9	49·5	58·8	62·6	56·3	·38	SW, NW	1188	29·0
August 5th ..	29·817	·300	78	68 7	45·3	57·2	62·2	56·7	·46	NW	1516	24·7
,, 12th...	30·014	·228	75	82·7	41·3	63·6	63·1	56·8	·29	SW	1299	29·0
,, 19th...	30·018	·429	73	88·5	55·0	69·4	66·6	57·4	·03	SW, W	974	24·1
,, 26th .	29·888	·774	74	74·8	43·3	59·2	62·7	58·2	·19	SW. W	1731	26·6
September 2nd ..	30·134	·329	91	72·9	35·6	56·2	60 0	57·8	·23	NE, N	941	27·2
,, 9th...	29·933	·569	84	76·2	41·4	58·1	60·5	57·4	·35	NW, SW	1041	19 8
,, 16th...	30 159	·403	83	74·6	33·7	53·2	56·6	57·1	—	E, SW	980	19·8
,, 23rd .	29·564	·366	81	67·0	36·6	50·5	55·9	56·5	·32	SW, NW	1322	17·3
,, 30th...	29·679	·722	91	62·0	35·5	50·7	53·6	55 7	1·02	SW	1471	20 4
October 7th .	29·421	527	91	63·0	37·1	48·2	51·7	54·8	·90	SW	1022	30·9
,, 14th...	29·836	·511	89	65·3	36·8	48·2	51·0	53·9	·69	W, SW	1289	21·9
,, 21st...	30·107	·586	95	66·7	35·8	51·9	53 5	53·5	·48	SW	1220	23·5
,, 28th .	30·059	·610	88	57·0	35·5	46·7	51·1	53 3	17	SW, W	1601	21·6
November 4th...	29·848	·476	89	59·2	21·7	40 6	45·2	52·4	·14	NW, SW	1141	25·3
,, 11th	30·227	·429	89	49·0	22·0	35·9	41·4	50·8	·07	NE	1336	27·8
,, 18th...	29·737	1 309	94	54·4	22·7	38·2	42·7	49·4	·59	E, SW, N	1876	29·0
,, 25th	30·072	·665	92	50·1	21·7	35·1	40·1	48·5	·34	NE, NW	1898	31·5
December 2nd..	30·029	807	93	55·1	15·0	38·5	42·2	47·4	·17	SW, N	1700	29·0
,, 9th...	29·876	1 063	88	50·1	19·0	39·2	40·1	46·8	·78	SW	1762	18·5
,, 16th..	29·623	1·333	92	52·1	30·0	39·9	39·9	46·2	1·50	SW, NW	2085	18·5
,, 23rd ..	29·642	1 323	90	50·0	29·5	40·2	40 8	45·8	1·15	SW	2012	30·9
,, 30th...	30·368	·662	90	49 7	28·2	39·5	40·9	45·3	·18	SW	1210	17·3

TABLE No. 4.—Weekly Returns of Deaths in the Sub-Districts.

EAST SUB-DISTRICT

Week ending		January.				February				March				April					May				June				July					August				September					October				November				December					1893
		7	14	21	28	4	11	18	25	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9	16	23	30	Totals
Measles	Under 5 yrs.	1	..	..	..	...	1	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	.	..	1	1	..	..	1	..	..	..	..	.	3	2	..	2	..	1	..	..	..	..	13
	5 & upwds.	..		1	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	...	..	..		..	..	..	..	..	..	.	..	..	.	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
Scarlet Fever	Under 5 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	.	..	..	..	..		..		..	..	1	1	1	..	..	1	3	2	1	1	1	..	1	..	..	..	..	14
	5 & upwds.	..	..	..	..	.	..	..	..	...	..	..	.	..	..	..	..	...	..	..	...	..	..	..	..	..	.	..	..	..	1	..	.	..	...	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3
Whooping Cough	Under 5 yrs.	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	.	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
	5 & upwds.	..	..		..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	...	..	...	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	Under 5 yrs.	..	..	..	..	..	..		..	..	..	..	..	..		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..		..	..	..	..	1	..	..	2
	5 & upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	..	..	..	..	..	..	..	..	..	..	..	..	..
Typhoid Fever	Under 5 yrs.	..	..	..	..	..		..	..	..	..	..	..	..		..	..	1	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
	5 & upwds.		..	..	..	..	..	..	1	..	.	..	..	.	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	:	1	1	..	..	..	..	..	..	..	..	..	6
Diarrhœal Diseases	Under 5 yrs.	2	2	.	..	..	..	..	..	.	..	...	..	1	..	..	1	..	2	..	1	..	..	..	1	3	3	13	14	14	11	8	11	4	10	7	2	6	2	2	1	4	1	1	2	..	..	..	..	..	..	..	..	133
	5 & upwds.		..	.	..	..	..	..	..	..	..	...	..	.	..	.	..	..	..	..	..	..	.	..	1	..		1	1	..	..	..	..	1	..	...	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6
Phthisis	Under 5 yrs.	..	..	1	..	..	..	..	..	.	1	1	..	1	1	..	1	1	1	2	..	..	1	..	..	..	1	1	..	1	2	1	1	2	1	..	1	2	..	3	..	1	..	..	2	..	..	..	1	3	..	35
	5 & upwds.	4	4	1	..	..	..	..	..	1	..	2	2	2	2	1	..	2	2	..	..	..	1	..	..	1	..	..	2	..	3	..	3	1	4	1	1		1	1	3	2	2	..	1	1	1	..	..	..	1	2	1	56
Respiratory Diseases	Under 5 yrs.	2	3	4	2	2		2	..	1	2	2	3	1	2	2	4	2	1	3	..	1	1	1	1	1	1	..	1	1	..	..	..	1	1	..	1	..	1	1	2	1	2	3	5	5	1	2	1	..	2	5	2	82
	5 & upwds.	5	9	6	3	..	2	4	7	6	4	2	3	8	2	6	5	3	3	6	6	4	5	4	1	3	2	4	..	3	1	2	2	2	1	2	2	2	1	2	5	3	2	4	2	1	7	2	3	..	2	7	3	174
All Causes	Under 5 yrs.	12	9	8	3	6	4	4	2	4	8	7	6	8	4	5	8	11	9	11	4	3	7	1	6	8	7	18	24	19	19	12	17	14	17	11	6	10	7	8	12	10	12	11	16	15	7	9	9	11	8	13	7	487
	60 & upwds.	4	10	7	2	2	4	4	7	3	2	2	4	6	5	8	2	3	7	5	4	5	8	4	8	5	3	3	2	2	2	2	5	6	2	3	4	4	3	3	8	3	4	3	4	4	6	6	5	5	3	9	4	229
	All Ages	27	32	20	10	9	14	13	15	13	15	15	18	24	14	21	15	23	24	24	13	12	22	12	19	19	15	26	32	27	29	20	26	24	25	23	13	19	16	17	28	21	24	20	23	25	22	19	19	20	15	31	18	1040

WEST SUB-DISTRICT

Measles.	Under 5 yrs.	..	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	...	..	..	..	..	5
	5 & upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Scarlet Fever	Under 5 yrs.	..	..	..	..	..		..	..	..	1	..	..	.	..	..	..	..	.	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	.	..	..	..	..	..	1	1	..	..	..	..	..	1	1	..	6
	5 & upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	2
Whooping Cough	Under 5 yrs.	.	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3
	5 & upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	Under 5 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	...	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2
	5 & upwds.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	1	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Typhoid Fever	Under 5 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..
	5 & upwds.	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	...	..	..	..	..	..	..	..	..	..	2	1	..	1	1		1	1	1	1	..	1	..	..	..	..	..	..	..	1	16
Diarrhœal Diseases	Under 5 yrs.	..	1	1	..	..		..	..	..	1	..	1	1	..	..	..	..	..	1	..	..	..	..	1	2	2	1	5	11	6	11	3	5	3	6	7	2	3	3	1	..	..	2	..	1	..	..	1	..	1	..	..	83
	5 & upwds.	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	.	1	..	..	..	...	..	..	..	1	..	..	..	1	.	5
Phthisis	Under 5 yrs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	2
	5 & upwds.	..	..	..	1	..	..	..	.	..	1	1	..	2	2	1	1	..	..	..	2	1	1	..	2	..	1	1	1	.	2	..	2	2	2	1	.	1	1	..	1	..	3	2	2	1	2	..	..	..	..	2	..	42
Respiratory Diseases	Under 5 yrs.	1	..	2	1	2	..	2	1	3	2	2	..	..	1	1	2	..	..	2	..	1	..	1	1	.	1	..	..	..	1	1	1	2	1	..	..	..	...	1	..	2	..	1	..	2	1	7	7	1	3	2	1	59
	5 & upwds.	3	5	3	2	1	2	3	3	2	1	1	1	5	4	5	4	4	1	1	2	1	1	3	..	1	1	1	1	1	2	..		2	1	1	4	..	1	2	2	3	1	3	1	4	4	3	4	6	1	..	1	2	110
All Causes	Under 5 yrs.	4	7	5	7	9	2	9	4	5	7	3	5	3	6	2	5	..	1	6	5	3	2	5	8	2	4	6	10	17	10	15	7	7	9	12	10	5	6	6	6	2	3	5	3	8	7	12	11	3	10	11	4	325
	60 & upwds.	3	7	2	1	2	4	5	5	2	3	4	2	3	4	2	10	6	3	7	3	3	4	1	5	2	1	7	5	3	3	3	4	1	6	4	5	3	2	4	7	9	5	5	9	3	8	9	11	3	..	1	2	216
	All Ages.	13	20	13	12	16	10	19	13	13	14	10	9	16	17	9	20	8	7	15	14	10	11	11	17	7	10	19	23	23	18	20	21	15	18	21	19	13	12	16	22	13	14	15	18	20	25	32	28	10	15	19	10	813

TABLE No. 5.—Quarterly Births and Deaths during 1893.

	Quarters.	East Sub-District, 39,134.					West Sub-District, 45,229.					Borough, 84,298.				
		1st	2nd	3rd	4th	Year	1st	2nd	3rd	4th	Year	1st	2nd	3rd	4th	Year
BIRTHS.	Males...	194	195	204	175	768	199	200	194	140	733	393	395	398	315	1501
	Females	205	173	178	173	729	168	185	167	152	672	373	358	345	325	1401
	Total	399	368	382	348	1497	367	385	361	292	1405	766	753	743	640	2902
	Rate	40·9	37·7	39·1	35·6	38·3	32·5	34·1	32·0	25·9	31·1	36·4	35·8	35·3	30·4	34·5
DEATHS.	Males	110	128	142	155	535	89	85	126	124	424	199	213	268	279	959
	Females	115	105	155	130	505	89	71	112	117	389	204	176	267	247	894
	Total	225	233	297	285	1040	178	156	238	241	813	403	389	535	526	1853
	Rate	23·0	23·6	30·4	29·2	26·6	15·7	13·8	21·1	21·3	18·0	19·1	18·5	25·4	25·0	22·0
	60 years and upwards ...	57	67	41	64	229	43	51	50	72	216	100	118	91	136	445
	Under 1 year	65	65	138	92	360	62	34	94	50	240	127	99	232	142	600
	1—5 years	16	19	44	48	127	8	15	27	35	85	24	34	71	83	212
	Zymotics	10	12	92	39	153	9	10	77	33	129	19	22	169	72	282
	Rate	1·0	1·2	9·4	3·9	3·9	0·7	0·8	6·8	2·9	2·8	0·9	1·0	8·0	3·4	3·3
	Measles	3	...	3	9	15	3	...	2	1	6	6	...	5	10	21
	Scarlet Fever	...	1	4	12	17	1	...	2	5	8	1	1	6	17	25
	Whooping Cough	...	...	1	...	1	1	...	...	2	3	1	...	1	2	4
	Diphtheria	...	...	...	2	2	...	1	1	1	3	...	1	1	3	5
	Typhoid Fever	1	2	2	2	7	2	2	7	5	16	3	4	9	7	23
	Influenza	...	1	1	5	7	1	...	1	12	14	1	1	2	17	21
	Diarrhœa	3	6	79	5	93	...	5	61	2	68	3	11	140	7	161
	Phthisis	20	17	30	24	91	5	11	14	14	44	25	28	44	38	135
	Respiratory Diseases ...	83	70	31	72	256	48	38	23	60	169	131	108	54	132	425
	Uncertified	4	4	3	...	11	1	3	2	...	6	5	7	5	...	17
	Inquests	15	19	15	19	68	7	14	8	23	52	22	33	23	42	120

Deaths in Public Institutions in the East Sub-District.	Hospital	48	51	43	58	200
	Workhouse	35	49	48	48	180
	From Outside the Borough	36	36	30	35	137
	From the West Sub-District...	19	21	23	20	83
	No Home	1	2	1	...	4

TABLE No. 6.

DEATHS in the Sub-Districts during the year 1893, classified according to Ages and Diseases.

	EAST SUB-DISTRICT.							WEST SUB-DISTRICT.						
	AGES.						TOTALS.	AGES.						TOTALS.
	0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.		0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.	
I.—Zymotic Diseases ...	78	44	10	13	5	3	153	60	28	12	23	5	1	129
II.—Parasitic Diseases ...	...	...	..	1	..	.	1	...		...	...	...	...	...
III.—Dietic Diseases	...	..	...	2	...	.	2	...	..	...	2	...	..	2
IV.—Constitutional Diseases	58	27	17	63	10	1	176	21	7	17	58	15	3	121
V.—Developmental Diseases	24	...	...	4	43	38	109	27	...	..	1	20	49	97
VI.—Local Diseases	138	55	39	146	96	22	496	89	43	25	12	92	26	397
VII.—Violence	3	1	7	10	4	.	25	1	7	3	8	2	2	23
VIII.—Ill-Defined, Not Specified Causes	59	...	4	8	6	1	78	42	...	...	1	1	..	44
Totals	360	127	77	247	164	65	1040	240	85	61	211	135	81	813
I—Zymotic Diseases.														
1—Miasmatic.														
Smallpox (Unvaccinated) ...	.	..	...	...	.	..		1		...	..	...	...	1
Measles	8	5	2	...	..	..	15	2	3	1	...	...	...	6
Scarlet Fever	..	14	3	...	..	...	17	...	6	2	...	..	...	8
Whooping Cough	1	...	...		..	..	1	1	2	..	...	..	...	3
Diphtheria	..	2	..	...	..	...	2	..	2	1	...	...	..	3
Enteric or Typhoid Fever	...	1	4	1	1	.	7	...	...	8	8	...	..	16
Influenza	...	.	1	2	3	1	7	1	3	...	8	2	..	14
2—Diarrhœal.														
Diarrhœa	67	21	..	2	1	2	93	52	12	..	1	1	1	68
5—Venereal.														
Syphilis	1	1	...	...	...		2	1	.	...	1	...	...	2
Stricture of Urethra	...	...		2	..	.	2	...	...	...	...	...	..	...
6—Septic.														
Erysipelas	...	...	...	1	..		1			..	..	1	..	1
Pyæmia, Septicæmia	1	...	.	..	...	.	1	1	...	...	2	1	...	4
Puerperal Fever	...	..	..	5	..	.	5	...	..	...	3	...	.	3
II—Parasitic Diseases.														
Hydatids	..	..	..	1	...	...	1	...	..	..	...	...	...	..
III.—Dietic Diseases.														
Chronic Alcoholism	...	...	..	1		...	1	...	...	...	2	...	.	2
Delirium Tremens	...	..	...	1	..		1	...	...	..	...	...	.	...

TABLE No. 6—Continued.

	EAST SUB-DISTRICT. AGES. 0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.	TOTALS.	WEST SUB-DISTRICT. AGES. 0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.	TOTALS.
IV—Constitutional Diseases														
Rheumatic Fever	...	..	...	1	..	..	1	..	...	3	3	...	...	6
Rheumatism	..	...	...	2	...		2	...	..	...	1	4	1	6
Gout	...	..	.	.	...	...	..	..	...	...	1	...	...	1
Rickets	...	..	...	...	..	..	..	1	..	...	...	..	...	1
Malignant Disease	...	...	1	18	5	1	25	...	..	.	18	7	2	27
Tabes Mesenterica	...	...	8	6	2	..	...	..	16	3	3	...	1	..
Tubercular Meningitis	...	..	2	5	1	.	..	..	8	3	1	1	..	..
Phthisis	...	..	...	...	..	23	12	11	40	5	...	91	..	2
Other Tuberculoses	..	...	..	2	2	2	...	...	6	1	...	3	1	...
Glycosuria	...	...	...	...	...	...	2	...	...	...	2	3	..	5
Others	.	..	...	...	..	23	2	..	...	...	...	25	13	1
V—Developmental Diseases														
Premature Birth	...	.	...	..	18	...	...		..	18	25	...	...	..
Atelectasis	..	..	..	...	...	3	.	..		3	..	...	...	...
Congenital Malformations	...													
			3	...	...	..	..	3	2	...	..	..	..	...	2
Old Age	...	...	...	...	...	.	...	..	4	43	38	85	.	...
VI—Local Diseases.														
1—Nervous System.														
Inflammation of Brain and Membranes	...	...	...	..	...	14	5	2	1	.	...	22	2	5
Apoplexy, Softening of Brain. Hemiplegia	...	...	...		...	.	.	8	7	..	15	..	..	...
Epilepsy	...	...	..	...	..	..	1	1	2	.	4	..	..	...
Convulsions	...			...	..	25	1	...		...	..	26	28	2
Others	..	...	...	.	...	1	.	.	2	8	...	11	1	
2—Organs of Special Sense.														
Ophthalmia	..	..	.	...	...	1		...	.	..	.	1		...
Otitis	.	...	...	...	...	..	...	...	...	...	...	..	..	..
3—Circulatory System.														
Pericarditis	...	...	.	...	.	..	...	...	...		...	..	..	
Diseases of Heart	..	..	..		...	10	24	14	5	53	..	...	4	24
Aneurism	...	...	..	...	...	..	...	...	1	..	..	1	..	...
Others	...	...	..	...	...	...	..	...	...	..	...	..	...	...
4—Respiratory System.														
Croup, Laryngitis	...	...	..	1	2	..	...	...	..	3	...	3	1	1
Emphysema Asthma	...	..	..	..	..	...	...	2	2	.	..	1	...	..
Bronchitis	...	..	...	...	..	22	13		29	44	13	121	16	13
Pneumonia	...	...	...	...	..	25	19	17	47	12	2	122	12	14
Pleurisy	...	...	...	...	...	..	...	...	2	...		2	.	..
Others	...	...	..	...	...	..	..	..	1	.	4	1	6	1

TABLE No. 6—Continued.

	EAST SUB-DISTRICT. AGES. 0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.	TOTALS.	WEST SUB-DISTRICT. AGES. 0 to 1	1 to 5	5 to 25	25 to 60	60 to 75	75 and upwards.	TOTALS.
5—Digestive System.														
Dentition	3	3	...	...	..	...	6	9	3	...	...	...	...	12
Sore Throat, Quinsy	...	...		..	1		1	...	.	.	...	...	...	.
Diseases of Stomach	7	...	1	3	...	...	11	3	...	...	2	1	..	6
Euteritis	30	8	...	1	..	...	39	13	2	1	1	1	..	18
Obstructive Diseases of Intestine	2	...	1	3	1	...	7	..	..	...	3	6	1	10
Peritonitis		1	2	2	...	...	5	...	...	2	4	...	...	6
Cirrhosis of Liver, Ascites	..	...	...	2	2	...	4	..	...	..	4	5	...	9
Jaundice and other Diseases of Liver	2	...	...	3	1	...	6	2	...		4	2	...	8
Others	..	..	..	...	...	...	...	1	...	...	...	...	...	1
8—Urinary System.														
Nephritis	2	2	1	9	...	...	14	...	...	...	6	5	...	11
Disease of Bladder or of Prostate	..	...	...	...	...	...	..	...	...	...	1	1	...	2
Others	...	...	...	1	...	...	1	...	...	...	...	...	...	...
9—Reproductory System.														
b. *Of Parturition.*														
Tubal Gestation	...	...	...	1	...	..	1	...	...	...	1	...	...	1
Puerperal Convulsions	..	...	..	1	...	...	1		...	...	...	...	...	...
Flooding	...	...	...	1	...	...	1		..	...	..	..	...	..
Others	...	...	...	2	...	...	2	...	..	...	4	...	..	4
10—Bones and Joints.														
Caries, Necrosis	2	..	2	1	...	..	5	...	1	...	...	...	..	1
11—Integumentary System.														
Cellulitis	...	..	1	...	...	..	1	...	...	...	...	...	...	...
Others	1	...	...	...	...	1	2	1	...	..	..	...	...	1
VII—Violence.														
1—Accident or Negligence.														
Fractures and Contusions	...	..	1	1	2	..	4	1	..	..	3	2	2	8
Burn, Scald	1	...	4	3	..	...	8	...	7	1	..	...	...	8
Drowning	...	1	2	2	2	..	7	..	...	1	...	...	...	1
Suffocation	2	..	...	...	...	...	2	...	...	..	..	..	..	...
Otherwise	...	...	...	1	...	..	1	...	...	..	...	..	...	...
2—Homicide.														
Murder	...	..	...	1	...	...	1	..	...	...	...	...	..	...
3—Suicide.														
Cut, Stab	..	...	...	1	...	...	1		...	..	...	...	...	..
Poison	...	..	...	...	...	..	..	...	...		2	...	..	2
Drowning	..	..	..	1	...	..	1	...	...	1	2	...	...	3
Otherwise	..	...	...	...	...	...	..	...	...	...	1	...	...	1
VIII—Ill-defined and not Specified Causes.														
Debility, Atrophy, Inanition	49	..	1		...	...	50	39	...	..	...	1	...	40
Hæmorrhage	...	..	...	...	..	...	...	...	...	...	1	...	...	1
Causes not Specified	10	...	3	8	6	1	28	3		...	...	..	...	3

TABLE No. 7.

TABLE OF DEATHS during the year 1893, in the Urban Sanitary District of WOLVERHAMPTON; classified according to DISEASES, AGES, AND LOCALITIES, *and the proportion of Deaths which occurred in Public Institutions.*

(a)	MORTALITY FROM ALL CAUSES, AT SUBJOINED AGES.							(i)	MORTALITY FROM SUBJOINED CAUSES, DISTINGUISHING DEATHS OF CHILDREN UNDER FIVE YEARS OF AGE.														
									1	2	3	6	9	11	12	13	14	15	17	18	19	20	21	22
	At all ages	Under 1 year	1 and under 5	5 and under 15	15 and under 25	25 and under 60	60 and upwards		Smallpox	Scarlatina	Diphtheria	FEVERS: Enteric or Typhoid	FEVERS: Puerperal	Erysipelas	Measles	Whooping Cough	Diarrhœa and Dysentery	Rheumatic Fever	Phthisis	Bronchitis Pneumonia & Pleurisy	Heart Disease	Injuries	All other Diseases	TOTAL
(b)	(b)	(c)	(d)	(e)	(f)	(g)	(h)																	
East Sub-District	1040	360	127	36	41	247	229	Under 5 yrs.	...	14	2	1	...	...	13	1	88	...	35	79	...	4	250	487
								5 & upwds.	...	3	...	6	5	1	2	...	5	1	56	166	53	21	234	553
West Sub-District	813	240	85	31	30	211	216	Under 5 yrs.	1	6	2	...	...	...	5	3	65	...	2	55	...	8	178	325
								5 & upwds.	...	2	1	16	3	1	1	...	3	6	42	100	53	15	245	488
TOTAL IN BOROUGH	1853	600	212	67	71	458	445	Under 5 yrs.	1	20	4	1	...	...	18	4	153	...	37	134	...	12	428	812
								5 & upwds.	...	5	1	22	8	2	3	...	8	7	98	266	106	36	479	1041
Deaths in Institutions in the East Sub-District. — General Hospital	200	14	27	21	28	93	17	Under 5 yrs.	...	2	1	1	...	...	...	...	1	...	...	3	...	10	23	41
								5 & upwds.	...	...	...	12	1	1	...	...	...	2	9	16	20	30	68	159
Deaths in Institutions in the East Sub-District. — Workhouse	180	13	7	1	6	43	110	Under 5 yrs.	...	...	...	...	...	...	8	...	1	...	3	2	...	...	6	20
								5 & upwds.	...	...	...	...	...	...	1	...	...	...	21	14	14	...	110	160
Deaths in Institutions in the East Sub-District. — From outside the Borough	137	7	9	6	15	51	49	Under 5 yrs.	...	...	...	...	...	...	1	...	1	...	...	1	...	2	11	16
								5 & upwds.	...	...	...	5	1	...	...	...	...	1	9	8	15	14	68	121
Deaths in Institutions in the East Sub-District. — From West Sub-District	83	1	12	4	5	38	23	Under 5 yrs.	...	1	...	...	...	...	...	...	1	...	1	...	...	7	3	13
								5 & upwds.	...	...	...	4	...	...	...	...	...	1	11	5	5	7	37	70

TABLE No. 8.

Comparative Deaths and Death Rates for the past Twenty-one years.

Year.	East Sub-District.				West Sub-District.				Borough.				Estimated Populations.		
	Total.	Rate.	Zymotic.	Rate.	Total.	Rate.	Zymotic.	Rate.	Total.	Rate.	Zymotic.	Rate.	East.	West.	Borough.
1873	1,125	29·7	...	...	631	19·8	...	...	1,756	25·1	...	...	38,010	31,841	69,906
1874	1,048	27·6	...	...	627	19·3	...	...	1,675	23·6	...	...	38,087	32,487	70,636
1875	1,155	30·3	...	...	640	19·3	...	...	1,795	25·2	...	...	38,163	33,140	71,373
*1876	1,099	28·2	...	...	655	19·0	...	...	1,754	23·9	...	...	38,241	33,806	72,118
1877	1,157	30·2	...	...	611	17·7	...	...	1,768	24·3	...	...	38,318	34,485	72,871
1878	1,081	28·2	...	...	644	18·3	...	...	1,725	23·5	..	..	38,396	35,178	73,632
1879	1,093	28·5	...	...	608	17·0	...	...	1,701	22·9	...	...	38,474	35,884	74,402
1880	960	24·9	.	...	629	17·2	...	...	1,589	21·2	...	...	38,552	36,606	75 178
*1881	998	25·4	.	...	650	17·1	...	...	1,648	21·3	...	...	38,620	37,305	75,932
1882	1,056	27·4	...	...	657	17·3	...	...	1,713	22·4	...	...	38,663	37,909	76,596
1883	1,042	27·0	...	...	601	15·6	...	...	1,643	21·3	..	..	38,706	38,522	77,266
1884	1,158 981	29·9 25·4	222	5·7	699 753	17·9 19·3	115	2·9	1,857 1,734	23·9 22·3	337	4·3	38,748	39,146	77,942
*1885	1,012 844	25·6 21·4	102	2·5	658 720	16·2 17·8	74	1·8	1,670 1,564	20·9 19·5	176	2·2	38,791	39,779	78,624
1886	1,125 955	29·0 24·6	182	4·7	697 746	17·3 18·5	156	3·8	1,822 1,701	23·0 21·5	338	4·2	38,834	40,423	79,311
1887	1,133 944	29 2 24·3	122	3·1	659 720	16·1 17·5	102	2·4	1,792 1,664	22·4 20·8	224	2·8	38,876	41,077	80,005
1888	1,005 827	25·8 21·3	95	2·4	707 768	17·0 18·5	121	2·9	1,712 1,595	21·2 19 8	216	2·6	38,919	41,741	80,705
1889	1,065 883	27·4 22·7	104	2·6	674 737	15·9 17·4	102	2·4	1,739 1,620	21·4 19·9	206	2·5	38,962	42,417	81,411
*1890	1,183 977	29·8 24·6	98	2·4	725 795	16·5 18·1	80	1·8	1,908 1,772	22·8 21·2	178	2·1	39,005	43,103	82,124
1891	1,214 1,026	31·1 26·3	120	3·0	822 888	18·8 20 3	122	2·7	2,036 1,914	24·6 23·1	242	2·9	39,048	43,800	82,842
1892	1,117 935	28·6 24·0	125	3·2	724 781	16·3 17·6	95	2·1	1,841 1,716	22·1 20·6	220	2·6	39,091	44,509	83,567
1893	1.260 1.040	32·3 26·6	153	3·9	730 813	16·1 18·0	129	2·8	1,990 1,853	23·6 22·0	282	3·3	39,134	45,229	84,298

* These years contain 53 weeks.

For explanation see remarks at end of the text.

TABLE No. 9.—Eleven Years' Annual Deaths, &c.

	1883	1884	1885*	1886	1887	1888	1889	1890*	1891	1892	1893	A.
Small Pox	7	5	...	...	...	...	...	...	...	...	1	1·2
Measles	...	98	1	111	31	39	40	32	25	41	21	41·8
Scarlet Fever	24	37	46	5	16	17	6	13	14	3	25	18·1
Whooping Cough	21	15	41	22	29	58	48	27	26	80	4	36·7
Diphtheria	4	6	10	10	7	10	7	4	5	4	5	6·7
Typhoid Fever	10	9	4	9	14	11	9	9	15	16	23	10·6
Diarrhœa	56	141	50	149	105	60	84	68	105	55	161	87·3
Phthisis and Respiratory... ...	475	498	503	486	512	560	485	673	668	582	560	544·2
60 years and upwards	403	361	396	367	419	406	406	452	491	400	445	410·1
Under 1 year	419	509	390	490	469	445	479	477	531	482	600	469·1
Under 5 years	616	841	601	835	741	682	778	727	818	757	812	739·6
Under 1 year per 1000 Births ...	149	189	138	174	175	166	179	174	188	171	206	170·3
Total Deaths	1542	1734	1564	1701	1664	1595	1620	1772	1914	1716	1853	1682·2
Rate per 1000	20·0	22·3	19·5	21·5	20·8	19·8	19·9	21·2	23·1	20·6	22·0	20·87
Zymotics	143	337	176	338	224	216	206	178	242	220	282	228·0
Rate per 1000	1·8	4·3	2·2	4·2	2·8	2·6	2·5	2·1	2·9	2·6	3·3	2·80
Births	2804	2691	2806	2803	2675	2674	2666	2735	2820	2805	2902	2747·9
Rate per 1000	36·4	34·6	35·1	35·4	33·5	33·2	32·8	32·8	34·1	33·6	34·5	34·15

* These years contain 53 weeks. **A.**—Annual Averages for the ten years preceding 1893.

TABLE No. 9a.—Eleven year's Quarterly Deaths.

Quarters ending	1883				1884				1885				1886			
	31/3	30/6	29/9	29/12	29/3	28/6	27/9	27/12	31/3	27/6	26/9	2/1*	3/4	3/7	2/10	1/1
Small Pox ...	1	2	1	3	3	1	—	1	—	—	—	—	—	—	—	—
Measles ...	—	—	—	—	11	66	20	1	1	—	—	—	—	—	8	103
Scarlet Fever...	4	11	3	6	6	7	20	4	17	14	9	6	1	3	1	—
Whooping C....	15	6	—	—	1	1	3	10	27	7	4	3	2	8	6	6
Diphtheria ...	4	—	—	—	3	—	2	1	5	—	1	4	6	3	—	1
Typhoid Fever	2	4	2	2	3	—	1	5	2	1	—	1	3	1	1	4
Diarrhœa ...	7	4	29	16	4	8	114	15	4	6	26	14	6	10	98	35
Phthisis and Respiratory	163	114	83	115	120	143	89	146	165	114	75	149	159	103	77	147
60 yrs. & upw.	148	100	66	89	92	94	78	97	135	73	79	109	127	83	64	93
Under 1 year...	109	93	118	99	91	113	185	120	86	106	84	114	106	95	148	141
Under 5 years	168	145	156	147	131	228	290	192	166	154	116	165	162	146	221	306
Total Deaths...	468	372	341	361	349	457	497	431	466	369	312	417	446	342	382	531
Rate per 1000	24·3	19·3	17·7	18·7	17·9	23·5	25·5	22·1	23·7	18·8	15·9	19·7	22·5	17·3	19·3	26·8
Zymotics ...	37	33	41	32	37	91	164	45	64	31	45	36	27	32	121	158
Rate per 1000	1·9	1·7	2·1	1·6	1·9	4·6	8·4	2·3	3·2	1·5	2·2	1·7	1·3	1·6	6·1	7·9
Estimated Population	77,266				77,942				78,624				79,311			

Quarters ending	1887				1888				1889				1890				1891				1892				1893			
	2/4	2/7	30/9	31/12	31/3	30/6	29/9	29/12	30/3	29/6	28/9	28/12	29/3	28/6	27/9	3/1/91*	4/4	4/7	3/10	2/1/92	2/4	2/7	1/10	31/12	1/4	1/7	30/9	30/12
Small Pox ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Measles ...	19	4	7	1	9	6	5	19	10	11	11	8	3	10	5	14	5	—	—	20	21	16	3	1	6	—	5	10
Scarlet Fever...	2	1	5	8	8	4	4	1	2	—	1	3	4	2	3	4	2	2	2	8	1	—	—	2	1	1	6	17
Whooping C....	6	1	7	15	29	14	11	4	4	14	6	24	17	8	—	2	—	—	5	21	47	27	3	3	1	—	1	2
Diphtheria ...	—	3	1	3	4	4	1	1	—	2	2	3	3	—	—	1	1	2	1	1	—	3	1	—	—	1	1	3
Typhoid Fever	1	2	5	6	2	5	2	2	1	2	4	2	2	3	1	3	5	2	5	3	1	7	5	3	3	4	9	7
Diarrhœa ...	6	4	90	5	4	7	30	19	3	8	56	17	7	3	42	16	5	7	66	27	7	4	31	13	3	11	140	7
Phthisis and Respiratory	170	120	75	147	184	137	95	144	165	116	76	128	248	139	109	177	177	204	84	203	241	129	84	128	156	136	98	170
60 yrs. & upw.	134	130	66	89	127	98	80	101	130	84	87	105	144	91	80	137	137	168	79	107	143	93	69	95	100	118	91	136
Under 1 year...	98	95	172	104	118	103	113	111	103	109	138	129	116	79	147	135	93	120	159	159	143	107	120	112	127	99	232	142
Under 5 years	182	135	235	189	191	166	150	175	170	180	212	216	199	136	190	202	140	174	209	295	266	188	160	143	151	133	303	225
Total Deaths...	447	394	417	406	478	395	335	387	433	378	386	423	545	365	392	470	417	536	400	561	587	415	340	374	403	389	535	526
Rate per 1000	22·4	19·7	20·9	20·3	23·7	19·6	16·6	19·2	21·3	18·6	19·0	20·8	26·6	17·8	19·1	21·5	20·2	25·9	19·3	27·1	28·1	19·9	16·3	17·9	19·1	18·5	25·4	25·0
Zymotics ...	39	20	122	43	61	45	56	54	22	42	82	60	44	30	58	46	24	41	88	89	92	59	45	24	19	22	169	72
Rate per 1000	1·9	1·0	6·1	2·1	3·0	2·2	2·7	2·6	1·0	2·0	4·0	2·9	2·1	1·4	2·8	2·0	1·1	1·9	4·2	4·3	4·4	2·8	2·1	1·1	0·9	1·0	8·0	3·4
Estimated Population	80,005				80,705				81,411				82,124				82,842				83,567				84,298			

* These quarters contain 14 weeks.

TABLE No. 10.

DEATH RATES, ETC., IN THE 33 GREAT TOWNS IN 1893.

	Population estimated to middle of 1893	Births in 1893	Corrected Death Rate.	Mortality Figure.	Recorded Death Rates.							Deaths under 1 year to a 1000 Births.
					Principal Zymotic Diseases	Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa	
England and Wales ...			19·17	1000								
England and Wales *less* 33 Towns			17·62	919								
33 Towns	10,327,846	31·9	23·32	1216	3·18	0·44	0·29	0·43	0·48	0·24	1·23	181
London	4,306,411	31·0	22·71	1185	3·08	0·39	0·37	0·76	0·54	0·17	0·80	164
West Ham	227,405	35·6	20·40	1064	3·39	0·16	0·35	0·42	0·68	0·30	1·24	170
Croydon	108,997	26·2	16·99	886	2·21	0·18	0·10	0·78	0·25	0·11	0·78	155
Brighton	117,833	25·4	18·62	971	1·85	0·11	0·10	0·28	0·48	0·13	0·75	169
Portsmouth	167,277	28·2	18·63	972	2·81	0·68	0·20	0·17	0·22	0·31	1·23	164
Plymouth	86,781	29·9	20·66	1078	2·77	0·98	0·25	0·16	0·53	0·12	0·73	169
Bristol	225,028	30·4	19·78	1032	1·65	0·11	0·16	0·22	0·34	0·11	0·63	141
Cardiff	142,435	36·1	21·96	1146	3·30	0·70	0·27	0·68	0·28	0·19	1·18	179
Swansea	93,816	35·1	21·43	1118	1·84	0·18	0·35	0·05	0·32	0·20	0·74	170
WOLVERHAMPTON ...	84,298	34·5	24·35	1270	2·84	0·25	0·31	0·06	0·05	0·33	1·83	208
Birmingham	487,891	32·7	24·29	1267	3·04	0·10	0·14	0·13	0·66	0·20	1·66	198
Norwich	104,184	30·9	18·47	963	3·05	0·59	0·19	0·22	0·64	0·36	1·05	195
Leicester	184,547	32·6	21·72	1133	3·95	0·28	0·43	0·11	0·61	0·25	2·19	220
Nottingham	220,551	30·2	19·85	1035	2·62	0·11	0·37	0·07	0·27	0·31	1·47	170
Derby	97,341	32·2	20·12	1050	2·07	0·18	0·14	0·07	0·45	0·23	0·93	156
Birkenhead	103,817	33·1	22·58	1178	2·82	0·14	0·12	0·15	0·67	0·26	1·47	196
Liverpool	510,514	36·0	30·33	1582	3·90	0·54	0·45	0·12	0·55	0·53	1·69	211
Bolton	117,278	33·1	27·33	1426	4·65	1·42	0·29	0·10	0·66	0·31	1·81	199
Manchester	515,598	33·6	28·21	1472	3·72	0·58	0·27	0·32	0·47	0·25	1·74	203
Salford	203,431	34·7	27·08	1413	4·14	0·45	0·20	0·29	0·49	0·49	2·11	210
Oldham	136,469	28·6	24·06	1255	2·48	0·21	0·12	0·13	0·40	0·19	0·95	187
Burnley	93,462	33·9	25·13	1311	3·80	0·29	0·55	0·15	0·36	0·30	2·09	223
Blackburn	124,005	30·9	26·15	1364	4·08	1·16	0·04	0·02	0·27	0·24	2·29	241
Preston	110,225	35·1	28·99	1512	6·01	1·63	0·25	0·13	0·43	0·46	3·11	269
Huddersfield	97,549	23·8	20·00	1043	1·24	0·24	0·26	0·03	0·13	0·12	0·46	141
Halifax	91,918	24·6	19·33	1008	1·71	0·05	0·03	0·25	0·35	0·14	0·51	173
Bradford	221,611	27·7	23·99	1251	3·43	0·31	0·32	0·10	0·50	0·22	1·46	197
Leeds	382,093	32·4	24·70	1288	3·47	0·89	0·08	0·16	0·44	0·29	1·56	206
Sheffield	333,922	34·8	24·81	1294	3·52	0·53	0·27	0·18	0·38	0·27	1·87	191
Hull	208,709	34·2	22·94	1197	4·14	0·61	0·16	0·11	0·38	0·48	2·36	206
Sunderland	134,515	35·6	23·64	1233	3·36	0·13	0·19	0·08	0·18	0·98	1·76	188
Gateshead	90,938	36·5	20·73	1081	3·46	0·78	0·10	0·21	0·58	0·23	1·54	170
Newcastle	196,997	33·7	22·87	1193	2.55	1·08	0·12	0·16	0·17	0·13	0·89	174